

The Tenth National Symposium and  
The Fifth International Symposium

# CREATIVITY INNOVATIONS

SOCIAL ORDER  
AND WELLBEING IN TIME OF  
COVID - 19 PANDAMIC  
(CISOWCOP)

SUNDAY 8 MAY 2022  
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The Tenth National Symposium and the Fifth International Symposium  
Bangkokthonburi University

“Creativity, Innovations, Social Order and Wellbeing in Times of COVID- 19  
Pandemic (CISOWCOP)”

May 8<sup>TH</sup> SUNDAY, 2022

ON THE SIXTH FLOOR, AT THE ADMINISTRATOR BUILDING

Bangkokthonburi University in collaboration with

NATIONAL RESEARCH COUNCIL OF THAILAND  
SPORT AUTHORITY OF THAILAND  
CHANDRAKASEM RAJABHAT UNIVERSITY  
KENT STATE UNIVERSITY  
SHENYANG CONSERVATORY OF MUSIC  
UNIVERSITY OF LATVIA ENERGIME UNIVESITY

THE ASSOCIATION OF RESEARCHERS OF THAILAND  
RAJAMANGALA UNIVERSITY OF TECHNOLOGY RATTANAKOSIN  
PHANOMWAN COLLEGE OF TECHNOLOGY  
ENERGIME UNIVERSITY  
UNIVERSITY OF LATVIA  
DISAFA UNIVERSITY

The faculties shall having the conference proceedings and poster presentations.

- Humanities and Social Sciences
- Science and Technology
- Health Sciences



## Preface

Bangkokthonburi University is the institution of education that focuses on increasing the academic knowledge by supporting the researchers, scholars and the graduate students to create and develop their works for developing the new knowledge in the community and country level which responds to the objective of creation the academic strength, and to support for creating the development, spreading the knowledge, exchanging the experiences, and creating the cooperation in creating the interdisciplinary. Bangkokthonburi University shall arrange the 10<sup>th</sup> national and 5<sup>th</sup> international conference Schedule of online conference through Zoom program. under the title of “**Creativity, Innovations, Social Order and Wellbeing in Times of COVID- 19 Pandemic (CISOWCOP)**” which will be cooperated from the public and private section, such as, NATIONAL RESEARCH COUNCIL OF THAILAND, THE ASSOCIATION OF RESEARCHERS OF THAILAND, RAJAMANGALA UNIVERSITY OF TECHNOLOGY RATTANAKOSIN, CHANDRAKASEM RAJABHAT UNIVERSITY, PHANOMWAN COLLEGE OF TECHNOLOGY, SPORT AUTHORITY OF THAILAND, KENT STATE UNIVERSITY, SHENYANG CONSERVATORY OF MUSIC, KENT STATE UNIVERSITY, ENERGIME UNIVERSITY, UNIVERSITY OF LATVIA, UNIVERSITY OF LATVIA ENERGIME UNIVESITY, DISAFA UNIVERSITY

Bangkokthonburi University hopes that this conference will be the opportunity in creating the beneficial knowledge for developing the interdisciplinary in various fields, and lead to the academic development in the future.



(Assoc.Dr.Prof.Bangon Benjatikul)

President of Bangkokthonburi University



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# Research Presentation

Subject group: Science and Technology



# DESIGN AND IMPLEMENTATION CIRCUIT FOR SULFATE DISSOLUTION OF LEAD-ACID BATTERIES USING HIGH-FREQUENCY PULSE TECHNIQUE

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## Abstract

This paper presents the dissolution of lead-acid battery sulfate by using a high-frequency pulse technique to increase the efficiency of the battery for longer service life. In this research, the researcher used a lead-acid battery sized 65Ah(20)/ 582A (CCA), a Micro 200 Pro digital battery tester battery meter, and a 24 V 250 W (MY 1016) DC motor to discharge the battery. The experimental process was divided into 2 parts: First, the old battery was charged for 2 hours and the parameters of the battery were collected. It was found that this old battery with percentage charged to 38%, Healthy 10%, Internal resistance 38.04%, 145 CCA and Voltage is 11.86 V. Then discharged to 0% percent charge. Step 2 charged for 2 hours via a high-frequency pulse. We created found that the old battery, has a percentage of Charges of 38%, Healthy 16%, Internal resistance 12.62%, CCA 235, and Voltage are 12.34 V. From the experimental results, it can be concluded that if the generated high-frequency pulse circuit is used to restore the lead-acid battery can make salty of the battery is higher. The internal resistance is reduced, the CCA value is higher, and the battery can be used for further use.

**Keywords:** Lead-acid batteries, Sulfate dissolution, High-frequency pulse technique

## Introduction

In Thailand, a large number of cars are traded, with these cars being used as a means of transport. One of the key components of a vehicle is the battery (Transportation Statistics Group,2022). But the service life of the battery is short, only 2-3 years,

it deteriorates and cannot be used further (Kanchanok Kumnerdpetch, 2018), (Chok Bancha Co., Ltd. Corporation,2022). Therefore it is discarded in various places, causing a huge environmental impact. The important batteries are lead, manganese, cadmium, nickel, mercury, chemicals used in the reaction such as sulfuric acid, etc., various toxic substances. These, if not managed properly, have the potential to contaminate water, surface, land, and atmosphere and spread to people, plants, and animals.

For this reason, old battery regeneration machines have been developed to be reusable and reduce the waste caused by chemical waste in batteries that have an impact on the environment. And it saves the cost of having to buy new batteries often. There is continuous research of various battery regeneration machines from the past to the present, but battery regeneration machines are still quite expensive and mostly imported from abroad (Somsak Meenakorn,2018). As for the cheap machine, it can be used for a short time, it will be damaged by a short circuit. making it unable to use to break down sulfates of batteries. (Powerplus,2021). (Nattawat Voranetsuthikul et all, 2020).

Therefore, the project organizers are interested in studying the design and construction of a battery regeneration machine for use by themselves and if the device has a problem, it can be repaired again. including the equipment used to create It selects the equipment that is already in the electrical laboratory. in order to reduce the use of high costs, The researchers will use a high-frequency pulse charging technique to dissolve the sulfate buildup on the battery plates (Chaiwat Limphonchitwilai, 2021), thereby increasing the efficiency of the battery regeneration unit

### **Objectives**

1. To study the techniques for rehabilitation of deteriorated lead-acid batteries
2. To design and build a circuit for rehabilitating deteriorated lead-acid batteries using high-frequency pulse techniques.
3. To determine the efficiency of rehabilitation of deteriorated lead-acid batteries. with battery regeneration circuit using high-frequency pulse technique

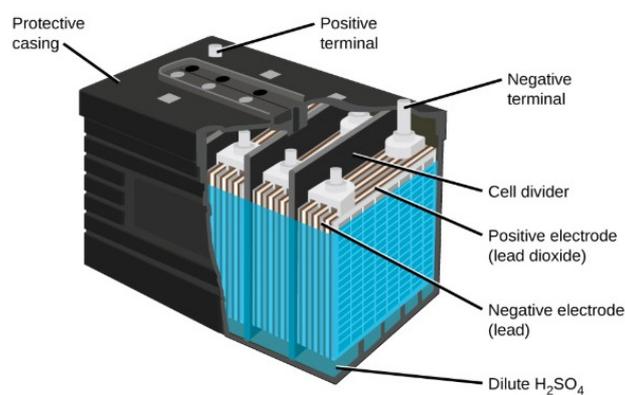
### **Literature Review**

This section discusses the basic knowledge that must be studied. In order to enable the researcher to conduct research properly, it consists of a battery, a high-

frequency pulse generator circuit, and the basic working theory of various ICs used in the project. Which has the following details

### Lead-acid battery

Lead-acid batteries are the oldest of all rechargeable batteries and were invented by Gaston Plante, a French physicist since 1859. (PCN Forklift,2019). Lead-acid batteries consist of Pole, Negative Plate, Separator & Glass mat, Positive Plate, Vent Plug, Container & Lid, and Terminal Pole. The Lead-acid battery components as shown in Figure 1.

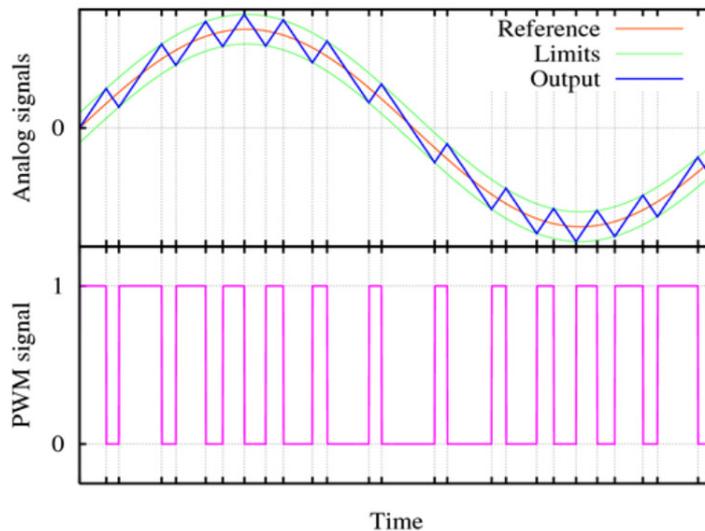


**Figure.1** Lead-acid battery components.

The causes of lead-acid batteries to deteriorate are as follows: 1 . Under Charging 2. Over Charging 3. Short Circuit 4. Problems with the electrical system in the car 5 . The presence of harmful substances in the battery pot Impurity 6 . Sulfation 7. Electrolyte Lite. (Fast Battery Co., Ltd., 2017).

### Pulse Width Modulation

Pulse Width Modulation is the modulation of the pulse width by comparing two signals, and the two signals are a "triangle" signal with the signal to adjust the pulse width. for example, Comparing the DC signal with a triangle signal A constant amplitude pulse signal is obtained as shown in Figure 2. (Pittaya Pannil et all,2007).



**Figure.2** Pulse width modulation Signal

PWM is generally a square wave generated by a short period of the signal (Period), usually less than 33 ms (30 Hz). and maybe as low as 0.01 ms (100KHz) or less in some industrial applications. The main principle of PWM is to modify the amplitude of the waveform for each period. If the waveform is short, it will cause the average voltage output to be less. And if the wavelength is longer, the average voltage will be greater. (Chaiwat Limphonchitwilai,2021)

Basic knowledge of various ICs used in high-frequency pulse generator circuits

In this research, the design of circuits using IC number SG3525A and IC 7812, including various electronic devices including resistors, capacitors, MOSFETs, and diodes, the basic theory is shown as follows.

IC No. SG3525A

The main features of the IC SG3525A Voltage = 8 to 35V, Internal regulated error amp reference voltage is 5.1V, The oscillator frequency is variable via an external resistor in the range of 100Hz to 500 kHz. , Facilitating a separate oscillator sync pinout, the dead time control is also variable according to the required specifications. , Has internal soft-start feature, has pulse shutdown facility by optimizing pulse shutdown, also features input under-voltage shutdown, PWM pulse is controlled by Lock to suppress multiple pulse outputs or generation, the output supports dual totem pole driver configurations.

IC No. 7812

IC Voltage Regulator is an IC that converts from a higher voltage ( $V_{in}$ ) to a lower voltage and is constant ( $V_{out}$ ). In this article, we will talk about the IC 78xx

Series which is a Fixed Linear Voltage Regulator. Output voltage (Some Linear Voltage Regulators can change  $V_{out}$ , for example, LM317) Each model in the 78xx Series has a different output voltage. By looking at the last 2 digits of the IC name, for example, 7805, it has a value of 5V output voltage.

### Conceptual Framework

This research was conducted to study the functioning of a circuit to restore deteriorated lead-acid batteries to extend the life of lead-acid batteries by using high-frequency pulse techniques. The batteries used in the experiment are used. It is a lead-acid battery. with a voltage rating of 12 volts, 65Ah by charging 1 battery at a time.

### Research Methodology

A lead-acid battery regenerator will bring various circuits to come together. Each circuit has different functions and functions. so that the lead-acid battery regeneration can work. which will consist of the following topics

1. In the design of the high-frequency pulse generator circuit in this project, Easy EDA was used to write the circuit. and design the printing plate In order to mill the printed circuit board to get the desired pattern and the design of the printed sheet, it must be designed to be a compact circuit board that does not take up space. And be careful not to close the circuits to cause a short circuit. Figure 3 shows a high-frequency pulse generator circuit. that has already written the circuit

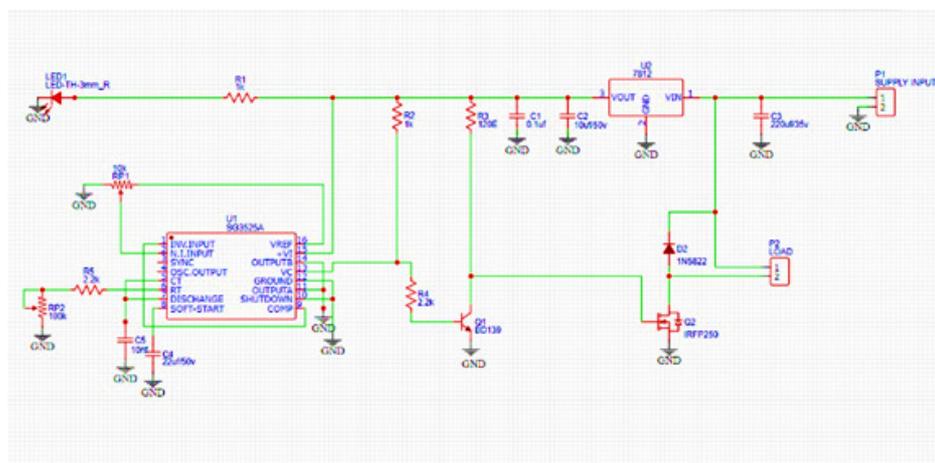
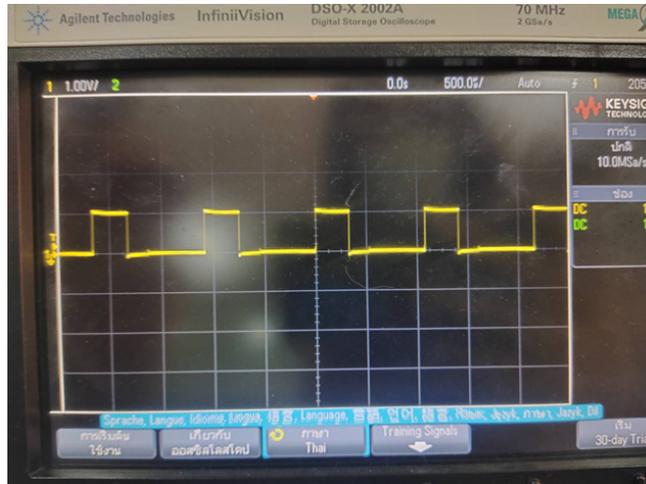


Figure.3 The High-frequency pulse generator circuit

2. When the circuit is completed Adopt the built high-frequency pulse circuit, adjust the pulse width to achieve high frequency. The resulting pulse signal is shown in Figure 4.



**Figure 4.** The high-frequency pulse signal is obtained from the generated circuit.

## Results

The result of the experiment was to collect the battery meter before going through the sulfation degradation circuit by using a high-frequency pulse technique. It was divided into 2 experiments.

1. Take the deteriorated battery to measure with the Digital Battery Tester and collect the test results. Show parameters as shown in Table 1.

**Table 1.** Results of battery deterioration measurements with a DIGITAL BATTERY TESTER (before the high-frequency pulsed sulfate degradation cycle)

% Charge Condition	Healthy (%)	CCA	Voltage (V)	Internal Resistance (mΩ)
0%	0%	45	11.48V	67.34

2. Take the 38% charged battery to the motor discharge. and collect the results of the experimental period along with the parameters of the battery as in Table 2.

**Table 2.** Discharge table after 38 % charge (before going through the sulfate decomposition circuit by high-frequency pulse technique)

12 V 70 Ah lead-acid battery (degraded)					
(before going through the sulfate breakdown circuit by high-frequency pulse technique)					
Time (Hour)	% Charge	Healthy (%)	CCA	Voltage (V)	Internal Resistance (mΩ)
0	38	10	145	11.86	38.04
1	20	5	115	11.70	57.42
2	8	3	75	11.51	61.90
3	0	0	55	11.48	64.93

From Table 4.2, when the 38% charged battery is discharged to 0 % with a load that is a motor MY1 0 1 6 2 5 0 W 2 4 V – DC-Brush motor and timed the experimental results, it was found that When the motor load cranks the power for approximately 3 hours, the percentage charge will be 0%.

Experiments after sulfate breakdown by high-frequency pulse technique.

Connect the sulfate breakdown circuit with the high-frequency pulse technique that has been created to connect the battery for charging. Charge percentage at 38% c, then measure the battery parameters with a DIGITAL BATTERY TESTER and collect the test results. Show parameters as shown in Table 3.

**Table 3.** Results from measurements of battery deterioration with a DIGITAL BATTERY TESTER (after undergoing a sulfate degradation cycle by high-frequency pulse technique).

% Charge Condition	Healthy (%)	CCA	Voltage (V)	Internal Resistance (mΩ)
38%	16%	235	12.34 V	12.62

1. Take the 38% charged battery to the motor discharge. and collect the results of the experimental period along with the parameters of the battery as in Table 4.

**Table 4.** Discharge table after charging 38 % (after undergoing sulfate degradation cycle by high-frequency pulse technique)

<b>12 V 70 Ah lead-acid battery (degraded)</b>						
(After going through the sulfate decomposition circuit by high-frequency pulse technique)						
Time (Hour)	% Charge	Healthy (%)	CCA	Voltage (V)	Internal Resistance (mΩ)	
0	38	16	235	12.34	12.62	
1	20	16	230	12.18	12.42	
2	15	15	230	12.11	12.47	
3	8	15	225	12.06	13.27	
4	1	13	215	12.01	13.87	
5	0	13	210	11.98	14.09	

From Table 4, when taking a sulfate-degraded battery with a high-frequency pulse generator circuit, charged 38% and discharged to 0% with a load of a motor MY1016 250W 24V – DC-Brush motor and timed the results. It was found that. When the motor load cranks the power for 5 hours 03 minutes, the percentage charge will be 0%.

## Discussions

This paper is a study of the design and construction of a battery sulfate breakdown circuit using a high-frequency pulse technique. to extend the life of the battery more Experiments have shown that old batteries that have deteriorated Come to charge at a percentage, charge 38%, then go to discharge to a percentage of 0% charge, it takes only about 3 hours from connecting through the load that is a motor MY1016 250W 24V – DC-Brush motor, then bring the deteriorated battery. Go through the sulfate breakdown circuit with the high-frequency pulse technique we have created. And come to charge at a percentage, charge 38% , and then go to

discharge to a percentage of 0% charge, it takes about 5 hours 03 minutes when thinking about efficiency, it will be found After going through the sulfate breakdown circuit with the high-frequency pulse technique we have created, the battery can be used with higher efficiency. Can be used with the load for a longer period of 2 hours 03 minutes. The results showed that the experimental results were clearly consistent with the intended objectives set by the authors. As a result of the experiments, the activated batteries were stored. Energy and discharge last longer as activating the battery breaks down the build-up of sulfate deposits on the battery plates, increasing battery efficiency.

### Suggestions

1. Buying a battery to use in the experiment. (must have a residual voltage of at least 5 V)
2. Make a lead-acid battery regenerator to reduce the use of new batteries. Should have designed the device to be more compact.
3. Should design the cooling system inside the machine. Because while the machine is working, it will heat the MOSFET and the diode.

### Reference

- Transportation Statistics Group. (2011). Planning Division, Department of Land Transport, "Number of newly registered vehicles in 2020," [Accessed: 7 November 2021]. [Online]. Available: <https://web.dlt.go.th/statistics>.
- Kanchanok Kumnerdpetch.(2018).Factors Influencing Battery Electric Vehicle Purchase Decisions of Consumers in Bangkok Metropolitan Region.Naresuan University Journal, Vol. 13, No. 3, pp. 96-109.
- Chok Bancha Co., Ltd. Corporation.(2022). Car Battery Life. [Accessed: 7 November 2021]. [Online]. Available: <https://www.carbattery.com>.
- POWERPLUS. (2021). 12V/24V Car Battery Charger. [Accessed: 7 November 2021]. [Online]. Available: <http://www.powerplus-jumpstart.com>.
- Chaiwat Limphonchitwilai. (2021). Introduction to Pulse Signals. [Accessed: 7 November 2021]. [Online]. Available: <https://www.inventor.in.th/home>.
- Fast Battery Co., Ltd., .(2017). "Sulphate (Klue) in Battery. [Accessed: 9 November 2021]. [Online]. Available: <https://www.fastbatt.net/content/5858>.
- PCN Forklift .(2019). Lead-Acid Battery.[Accessed: 10 November 2021]. [Online]. Available: [https://www.pcnforklift.com/article\\_detail/view/74496](https://www.pcnforklift.com/article_detail/view/74496).
- Pittaya Pannil et all. (2007). "PWM signal generation technique. Digital with FPGAs," KCU Engineering, Vol. 34 No. 3 (333 - 341) May-June 2007.

Somsak Meenakorn.(2018). “Development of High Discharge Lead-Acid Batteries for Military Missions,” Kasem Bundit Engineering, Vol. 8 No. 1 January-April 2018.

Nattawat Voranetsuthikul et all.(2020). The Restoration Machine Deteriorated Lead-Acid Batteries. Phranakhon Rajabhat University Vol. 3 No. 2 July – December 2020.

## PAULOWNIA PLANTATION OPERATIONS FOR PRIZED TIMBER AND CARBON CREDITS IN KINGDOM OF THAILAND

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<sup>4</sup>BioSciences Global

<sup>5</sup>Bangkokthonburi University

### Abstract

A convergence of technology, financial instruments, the climate crisis, and the Internet has emerged to present a rare opportunity. Our goal is to assist current farming operations, whilst adding Solar Energy, Storage, Irrigation, and other technologies to current farming. Aggregating these convergence technologies would lead to a Monetizing of Fast-Growing Trees (FGTs), together with the very much in vogue - having attained 41 billion US\$ in sales in 2021 - Non-Fungible Tokens (NFT) market, combining with the distinct prospect of attracting Foreign Exchange to Thailand.

An ability exists to secure a rare world's first by contracting services able to provide elite plantation genetics through a related entity. These genetics evolved over years as Australia's leading forester, at the time, was working with fellow scientists in China as they sought to produce a high yielding clone. On succeeding with this mission, the scientist was gifted the best of the cloned varieties to introduce back to Australia. These clones were then treated with a proprietary science to create the ultimate Polyploidies Paulownia species.

The Australian CSIRO, Queensland University and the Queensland Dept. of Industry have all independently confirmed the existence and characteristics of this superior clone. A Business Model, based on these super-clones, has been developed with the intention to secure land in conjunction with selected Thai Farmers, to then commence the establishment of Paulownia Plantations.

These Plantations will focus on three principal revenue streams

- i) sales of prized timber,
- ii) carbon credits, and
- iii) generating income from local related agriculture pursuits, complementary to, and supported by resources which would include provision of Solar Energy and crop irrigation needs.

It is projected that the Farmer's financial position shifts to one of greater financial security each year.

Corporately, the controlling SPV will be packaging Non-Fungible Tokens (NFTs) as an in-demand investment backed by specific, Blockchain validated, tradable tokens of value. Investment Flows will be used to fund development of "legacy" crops, FGT assets and Solar Energy installations with involved Farmers.

**Keywords:** Paulownia, polyploidy, fast growing tree

## Introduction

The core technology has the potential to significantly improve profitability and extend the capabilities of operations in a wide range of farming pursuits. The main area of interest is that of increasing plant vibrancy and yields, with an extension into food security, whilst establishing Solar RE, irrigation and Paulownia.

Leveraging off proprietary science, the Scientific Team, have been highly successful in their non-GMO enhancement of plant species to address critical agricultural industry problems. This technology has the potential to significantly improve profitability and extend the capabilities of operations in a wide range of industries and agriculture:

- With increased resistance to pests and diseases
- That grows faster
- That is better able to adapt to difficult environments
- Forestry and plantations, which grow faster, reducing harvest and rotation

cycles.

The products capitalize on the latest developments in microbial research. The Technology offers better protection from pathogens such as harmful bacteria, fungi, viruses etc., than existing solutions and have a significant impact on the prevention of the spread of pathogens in all agricultural industries.

## Underlying Science and Technology

Control of bacterial and fungal infections in food and crop species is a complex problem. In the natural environment there is a complex symbiotic relationship between plants and the microbes that inhabit their leaves, roots, internal tissue and surrounding soil. By providing compatible microbes in the appropriate concentrations on a species-

specific basis we can provide a ‘natural’ protection against pathogen attack for the plant, to remove any need for heavy pesticide spraying.

### **Technology is Unique**

The staff have over 25 years each of hand on experience in all aspects of plant biotechnology, physiology, plant breeding and development. During this time, plants and plant solutions, have been developed for many industries including mining, forestry, and food crops, as the team been developed lab-induced, polyploid plants for a myriad of applications and working on inducing epigenetic changes in key species before the term was even coined. All of this breakthrough work has been achieved without the use of genetic modification organism (GMO) technology. Industry recognition of this work led to significant industry partnerships with major Global Organizations.

### **Materials & Methods**

#### **Paulownia**

Paulownia is a deciduous tree that originates from China and other areas of south-east Asia. The genus Paulownia is considered to be represented by nine species with a large amount of intraspecific variation. It is the Best in Timber.



**Figure 1** Paulownia tree

Source: <https://en.wikipedia.org/wiki/Paulownia>, 2022

We have developed several lines of Paulownia which demonstrate all the characteristics typical of a polygenic variety; increased growth rates, larger leaf size, increased robustness and adaptability. Samples of the polygenic Paulownia have been independently tested by the Queensland Department of Primary Industries, and Queensland University.

### **Epigenetic Advantages Analysis**

- Genetics is the study of DNA, the plant's blueprint. It makes the seed in an apple grow into an apple tree, not a Christmas tree. By re-engineering the DNA, you can make it light up at night or survive being sprayed with weed killer.

- A plant's traits - how fast it grows, how big it gets, how many apples it produces, how resistant it is to disease are products the interaction of the DNA blueprint with the plant's environment. By enabling the plant to express itself you can get more apples, more seed oil, more timber, more CO2 Sequestration.

- Epigenetics is the study of this interaction and its effects. It is a fast-growing area of interest, because activating previously dormant parts of a plant's genetic code leads to more productive, resilient, adaptable plants, beautiful plants, and so on.

- Polyploidy is a natural event in the life of plants We can routinely induce polyploidy in our laboratory and grow plants that are bigger, faster, stronger.

- We do what nature has been doing for millennia and taking millennia to do – make the most of what is already there. Except we do it in months to enhance any plant species.

### **Summary & Impact of Epigenetic Gains**

- Proprietary Process: A range of targeted natural responses are elicited from a species in a manner that results in new performance characteristics and capabilities.

- Benefits: Gain faster and more efficient carbon synthesis which means accelerated growth, faster maturation, shorter harvest cycles, greater biomass, higher yields and an increase in general robustness

- Ecology - recovers and plants gain a new vibrancy as they start to thrive.

- Species vibrancy - leads to more rapid growth, higher levels of quality and increases in yields.

## Maximizing Yields, Timber and Carbon Credits

Paulownia is on a globally upward trajectory as its qualities as a superior wood are increasingly recognized and industry adoption grows.



**Figure 2** Mature Paulownia Plantation ready for Harvest

Source: <https://totibleu.wordpress.com/2014/02/17/a-discovery-to-share>, 2022

## Paulownia Features

- Paulownia has the highest strength to weight ratio of any wood.
- It is water, warp and termite resistant, and is thus used for furniture, veneers, musical instruments, elite surf boards and home furnishings.



**Figure 3** Epigenetics: Same parent, same age, same growing conditions.

Source: <https://aprilandoak.com.au/semarang-paulownia-wood-trivet-large-bleached>

- The wood of Paulownia is straight grained, with a bright and expressive beautiful pattern of straight fibers and granular texture, glossy, light and odorless.

- The color of the wood is from a cloudy pale yellow to light red.



Figure 4 Premium Timber and ideal for quality building

Source: <https://www.designboom.com/architecture/hinge-house-mio-tachibana-architects-tokyo-11-24-2018/>

- Paulownia wood is soft, but extremely resistant to bending and twisting, and now frequently used for buildings, which require high strength.
- Paulownia timber is increasingly used as a feature within the construction of many houses.
- The specific gravity of Paulownia is less than balsa wood, and recognized as the lightest wood until recently, yet it is extremely strong.
- The high strength/weight ratio makes Paulownia wood irreplaceable in many construction situations where strength, smoothness and absence of defects are important.
- The wood has an incredible resonance that is highly valued in the production of musical instruments, equipment for concert halls and recording studios.

### Non-Fungible Tokens (NFTs) & Marketing

NFT stands for "non-fungible token." At a basic level, an NFT is a digital asset that links ownership to unique physical or digital items, such as works of art, real estate, music, or videos.

NFTs can be considered modern-day collectibles. They're bought and sold online, and represent a digital proof of ownership of any given item. NFTs are securely recorded on a blockchain — the same technology behind cryptocurrencies - which ensures the asset is one-of-a-kind.

During the closing months of 2021 and the early months of 2022, some of the biggest names in Finance including Time Magazine<sup>1</sup>, Forbes<sup>2</sup>, and other Media, ran feature articles on NFTs.

Distinctively, the articles were consistent with common themes - questioning, highlighting and presenting an overwhelmingly spectacular future as they variously dissected, analyzed and then predicted a future that included:

- We are just at the beginning of possibilities in regards to what NFTs and smart contracts offer, and why investors and collectors are enthusiastically entering this emerging market.

- Innovation in this space will continue over the next decade.

- Real estate markets are ripe for disruption.

- Contracts, certifications, ownership and claim history will all be stored in the blockchain and publicly accessible.

- With an NFT, the transaction process is streamlined, allowing a buyer to assume ownership of a piece of real estate within minutes.

Along with an overwhelming number of superlatives for the general direction of NFTs, there were some cautionary notes, best summarized by:

We are still in the early days of NFTs. It is a tremendously complex piece of technology with some key hurdles that need to be overcome:

- For genuine NFT Value there must be a useful function for the NFTs, or legitimate value backing the NFT that communities universally agree upon - This point becomes one of principal interest

This is a key focus of our Model as we are able to uniquely identify our product, attach a fractionalized asset to that product to become a unique package in its own right, and to then lock this asset-backed, revenue stream generating product immutably to Blockchain. This process essentially replicates large scale Real Estate - which has recently experienced US\$ Billions in NFT sales in New York and other destinations.

1. Blockchain is fundamentally secure, decentralized, globally accessible, and designed for individual empowerment and wealth growth. It has built-in immunity to censorship and corruption from the powerful few, to lay the foundation for an entirely new apps and services layer to the entire internet.

2. Collectors and investors can clearly see what they are getting in advance,

confirm the assets validity through its unique identity and feel safe knowing that the contract cannot be changed or falsified.

3. Content on NFTs cannot be censored. No institution, corporation, or government can truly quash the content on the blockchain.

4. Non-fungible tokens may be used to represent any asset. According to Investopedia, this can include online assets such as digital artwork and real assets such as real estate, which has already witnessed major property being “fractionalized” to smaller units which are identified uniquely by incorporating blockchain to then digitize the record.

### Paulownia NFTs

An interesting, real estate related; story appeared recently in the UK Guardian<sup>3</sup> Newspaper. A successful Cryptocurrency Participant secured ownership on an Island in Vanuatu some years back, to recently offer what is termed:

*“Satoshi Island is truly a real-world use case for blockchain technology as 100% of commerce on the island will be cryptocurrency based and all assets and rights will be made possible through the ownership of NFTs - anyone can own a piece of the island through the availability of an NFT collection made up of 2,100 uniquely identified blocks of land.*

*Each of these blocks are large enough to build a home on and holders of multiple blocks can combine adjoining NFTs to create larger blocks capable of accommodating expansive homes, commercial spaces, or apartment complexes”*

This is one of the inevitable “next steps” whereby the link is made between asset backed - and thus inherently valuable NFTs - and the fractionalization of assets, which allows many people to have a share in a valuable real asset.

Yes, there already has been some selling of fractionalized assets - US\$ Billions with big property New York, offices, apartments, etc., and all sitting on Blockchain, however, this would appear to be the genesis of a larger shift, extending to any asset that can be uniquely identified (an island), has intrinsic value (people willing to purchase), and a revenue stream attached. This represents the moment of expansion to any asset fitting the following criteria and addressing the issue raised above of “There must be a useful function for the NFTs, or genuine value backing the NFT that communities universally agree upon.”

This is a paradigm shift, representing the inclusion of all of the following links:

- i) Income owning asset +
- ii) Fractionalizing an asset (with revenue stream rights attached) +
- iii) The transaction immutably locked into blockchain +
- iv) The issuing of an NFT for each unique fraction of the asset, with an algorithm - on say an Ether contract) - committing to meet agreed periodical returns to the NFT Holder.

The above precisely describes our Model as we address all of the above four points:

The revenue stream generating NFT now has a totally unique benefit, aside from the NFTs intangibles giving it some value, a distinct “other” value also attaches, with this being the income stream.

This gives rise to potential uplift as investors will assess:

- a) their intrinsic uniqueness value (current), and
- b) a DCF (Discounted Cash Flow) or a similar process to quantify a pecuniary sum according to their own values attaching to the NFTs income stream
- c) leading to a different, and more value ascribed (read premiums/uplift potential) to an issue price of NFTs, as distinct from NFTs current pure subjective personal and speculative value assessment.
- d) that is not to dismiss these intangible value judgements as they all add in an accumulative manner in price determination.

### **Technologies, Fast Growing Trees, Yields & Renewables**

Our technologies are applicable to a range of plant-based industries including fruit and vegetable production, forestry, carbon capture and storage, biomass production, and a number of other agricultural and renewable energy industries.

The Rural Poor are generally challenged by many variables, including weather, floods, drought, crop planting and harvesting windows, often combined with decentralized living and limited access to items considered by city-dwellers as essential to maintaining living standards including access to many services, qualified medical personnel, education, entertainment, and quality shopping.

Fresh air, water, food and energy are regarded as essential things humans need to survive on Earth. Whilst, the prime necessities of sustained, healthy life - fresh air, water and food are generally of better quality and abundance for the Rural dwellers, and provide a compensating balance for country folk and their lifestyles.

Though, without an adequate and continuous source of energy, priced affordably, their rural-lives would be seriously compromised.

However, as a function of the increase in population, the pressure for more and more resources grows. Resource availability has for far too long been generally regarded as being unlimited, thus an expectation they are able to be endlessly exploited has long prevailed. This has resulted in abuse, overuse, toxicity, climate crisis, and more, with wide ranging implications for Public Health issues.

In time, Climate Crisis related issues move beyond their zone of initial emission to a Global impact. There is no hiding from the ever-increasing carbon dioxide, and other air and water toxicity, as is witnessed by the oscillating, yet ever-increasing levels of atmospheric CO<sub>2</sub> - simply these numbers are universal, meaning there is zero chance of escaping the ever-increasing CO<sub>2</sub> ppm levels and their inevitable impact on the ability to sustain life on a closed system planet. Most farmers have small carbon footprints as they live modestly on their land, producing much of their daily sustenance with a low carbon cost, yet, in the bigger picture this counts for little.

Farmers in ASEAN regions, and particularly in Thailand, are not altogether removed from a degree of their own generation of CO<sub>2</sub> emissions, due principally to the source of their energy use being 85% derived from fossil fuels.

All three essential inputs to quality human life are now under extreme threats, and adding further to the prime necessities of sustained, healthy life based on fresh air, water, and food, is the energy provision challenge, to further impact quality of life factors for farmers.

There exist several contributing avenues to addressing the energy crisis, with this document providing a cost-effective solution involving reforestation, carbon credits and the growing of prized timber with a significant profit potential, particularly as energy needed to drive the process is all solar and thus free.

A substantial attraction for Renewable Energy is that, once installation costs are met, there is zero cost for generated electricity - the incremental kWh of energy is free!

Providing solutions that include Renewable Energy, agricultural crops, prized timber, together with carbon credits for CO<sub>2</sub> sequestration are able to be attractively, and profitably packaged for the Farmer.

Though the land size is not great, the sheer numbers crystallize the opportunity, as each farm unit generally supports a significant extended family whose current habits, particularly those related to energy use, collectively create a significant carbon footprint.

Ninety percent of Thai electrical generating capacity is conventional thermal<sup>4</sup>, with natural gas (65%), coal (20%), biomass and biogas (5%) and the remainder hydro sourced. A number of generation sites had their oil-fired plants replaced by natural gas, which, though regarded as a cleaner energy source, nevertheless, has a major problem with furtive gas leakages from supply channels, with these leakages often leading to emissions issues exceeding those of other fossil fuels.

With certainty, the entire fossil fuel thermal supply can be replaced with zero cost solar to provide substantial financial, emissions and health savings. Our organization is able to deliver such a solution.

Other benefits extend to include continuing to proceed with a Farmer's "legacy" crop - the one that has followed through generations, however adding the new, Fast-Growing Tree (FGT), and lucrative Paulownia Timber Plantation, to bring added potential of increased income, together with, for qualified farms, irrigation and fertigation, with CAPEX funded for those items. Thus, in summary, the e-Farm brings electricity generated on-site, electricity to run farm equipment, with steam, heat, chilling and freezing, and possibilities for adding SME activities.

## Conclusions

The global energy shift to non-fossil fuel generation has reached unstoppable momentum, and with good cause, as the benefits are undeniable. An appreciation that farms are perfectly positioned to benefit from a shift to Solar energy to drive, not just household energy needs, but also on the farm with the Kubota, irrigation pumps, plus cars as the polluting and expensive ICE engine is replaced for zero polluting, zero cost solar. And, whilst attaining these aims, concurrently they can be assisted to add new profit enhancing, farming pursuits. The shift is all of essential, profitable and benefit granting - welcome to the Future!

## References

<https://time.com/5948741/time-nft-covers/>

[https://www.forbes.com/sites/nicolesilver/2021/11/02/the-history-and-future-of-nfts/  
?sh=63ad87596a16](https://www.forbes.com/sites/nicolesilver/2021/11/02/the-history-and-future-of-nfts/?sh=63ad87596a16)

<https://www.satoshi-island.com/>

Process Improvement for Vibhavadi Hospital, Department of Alternative Energy  
Development and Efficiency. Ministry of Energy, [https://webkc.dede.go.th/testmax  
/sites/default/files/3.%20ระบบปรับอากาศและระบายอากาศ.pdf](https://webkc.dede.go.th/testmax/sites/default/files/3.%20ระบบปรับอากาศและระบายอากาศ.pdf)

# Research Presentation

Subject group: Health Sciences



# LOW-TEMPERATURE EVAPORATION AND DESALINATION SUPPLY OF FRESH WATER

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## Abstract

Fresh air, water, and food are the three essential things humans need to survive on Earth. Water is one of the prime necessities of sustained, healthy life. Without an adequate and continuous source of fresh water, life could not exist on earth. In a critical sense we are able to make the statement that these essential elements are the foundations for "Life".

However, as a function of the increase in population, the pressure for more and more resources grows, and have for far too long, generally been regarded as being unlimited, thus an expectation they are able to be endlessly exploited, leading to abuse, overuse, toxicity, climate crisis, and more, with wide ranging implications for Public Health issues. All three essential inputs to quality human life are now under extreme threats.

In addition to the serious diminishing of the quality of food and air, the provision of potable water has reached crisis levels in many communities and countries globally.

There exist several avenues to address the water crisis, with this paper providing a universal, and cost-effective solution for the supply of quality water, at levels of adequacy, and absent any negative externalities, particularly as energy needed to drive the process is all solar and thus free.

**Keywords:** RED SUN, Desalination, sea water, water recycling.

## Introduction

Due to relatively high energy consumption, the costs of desalinating sea water are generally higher than the alternatives (fresh water from rivers or groundwater,

water recycling and water conservation), but alternatives are not always available and rapid overdraw and depletion of reserves is a critical problem worldwide.

Quoting Christopher Gasson of Global Water Intelligence, At the moment, around 1% of the world's population are dependent on desalinated water to meet their daily needs, but by 2025, the UN expects 14% of the world's population to be encountering water scarcity. Unless people get radically better at water conservation, the desalination industry has a very strong future indeed.

### **Technological solutions**

There are a number of technology solutions that could be used. First there is drip irrigation for irrigation. Second, treating of waste water so it could be drunk several times over is a way to conserve water.

Then there is Desalination, which isn't new technology but has actually been around for years. It is the same technology used in US Aircraft carriers to provide water for the crew. There are many countries that use desalination such as China and India.

Singapore has constructed a desalination plant and it uses a total of 4.2 kWhr/m<sup>3</sup> of energy. They are selling US\$ 0.49 per cubic meter of water for the first year. The contractor they used Black & Veatch did the design, support during construction and operation totaled 90 million US\$.

The French have constructed a desalination plant. It produces 320,000 cubic meters of drinking water per day. It cost 1.5 billion Euro between Veolia and an Israeli counterpart to cover the finance, construction and operation of the plant in a build operate and transfer scheme for 25 years.

Trinidad and Tobago built a 120 million US\$ plant that would process 28.8 million gallons of water per day. The plant is selling water at the price of US\$ 2.67 per 1,000 gallons. At 46 pesos per one USD, that's 122.82 pesos per 1,000 gallons of water.

There is an ecological cost to desalination and other side effects such as heavy use of energy and it leaves brine. What ecological considerations? For example, in Australia, the facility there produces only 140,000 cubic meters of water per day and sucks in 0.1 meters per second of water to allow fish to escape.

### **Is desalination the answer?**

How much water does Metro Manila really need? And if a facility is constructed to meet that demand, would the cost be affordable for people? How much would the cost of water then become for Juan de la Cruz?

Perhaps what is needed is a holistic approach. How does this affect the public years down the line?

And sadly yes, if you want water, you got to pay for it. The problem of water not just in the Philippines but for the rest of the world has few solutions and a lot of cost. What else could be done but to start using technology to our advantage whether it is treating water or desalination or some other solution.

It seems to me that simply tapping Laguna Lake and looking at it as the ultimate solution is a stopgap measure and might not be the best idea. Yet in spite of that, even if a desalination plant is the solution, it would take years and much money to build in the order of billions of pesos in magnitude but the choice to solve the future has got to start real soon.

### **Energy Makes Up Half of Desalination Plant Costs**

Energy is the largest single expense for desalination plants, accounting for as much as half of the costs to make drinking water from the sea, according to a report.

Desalination plants on average use about 15,000 kilowatt-hours of power for every million gallons of fresh water that's produced, the Pacific Institute said today in a report. In comparison, wastewater reuse draws as much as 8,300 kilowatt-hours of power for the same volume and importing a similar amount of water into Southern California requires as much as 14,000 kilowatt-hours of electricity, it said.

There are 17 desalination plants proposed in California and two in Mexico to help supply area homes and businesses, according to Heather Cooley, co-director of the institute's water program. While the projects may ease water strains for area utilities, they'll increase suppliers' exposure to variable energy prices, she said by phone<sup>1</sup>.

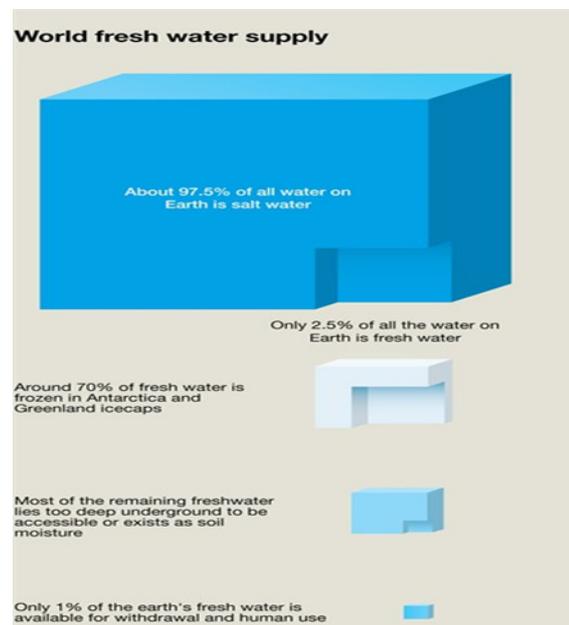
"While you may be improving your water reliability, you may be increasing your vulnerability to energy price changes over time," Cooley said.

A 25 percent increase in energy expenses would raise the cost of producing water by about 9 percent and 15 percent at reverse osmosis and thermal desalination plants respectively, according to the report. Electricity prices in California

are projected to rise by about 27 percent from 2008 to 2020 in inflation-adjusted dollars as power grid infrastructure is maintained or replaced, capacity is added and more renewable energy is integrated<sup>2</sup>.

History has evidenced some surprises to the accepted narrative of a decade ago. Plummeting prices from Renewable Energy have worked to not only reduce energy costs, but also to introduce “free energy” into the equation due to there being virtually zero cost for the marginal generation of energy from wind and solar, thus presenting a welcomed paradigm shift with dramatic price reductions for RE and desalination projects<sup>3</sup>.

The RED SUN system of electricity and heat generation is built to run evaporation at a relatively high temperature of approximately 1300°C. The CAPEX equipment cost for the RED SUN system can be amortized over a 5 years period, and with the sun’s energy being free, the cost for water is dramatically reduced, with 300,000 m<sup>3</sup> being less than US\$100,000. The payback period is less than 5 years, with modest maintenance needs.<sup>4</sup>



**Figure 1** World fresh water supply

Source FAO 2009

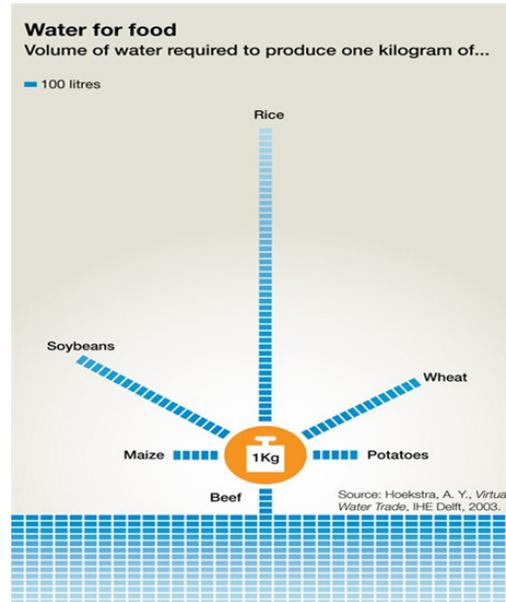


Figure 2 World for food

Source Hoekstra, A.Y., *Virtual, Water Trade*, IHE Delft, 2003.

### Assumptions for System

- Pretreatment and brine disposal is “free.” As residual salts are built into cement foundations.
- Energy inputs into the process from external sources, can be valued at US\$0.15/kWh.
- Energy generated by the process, can be credited against overall process costs at US\$0.15/kWh.

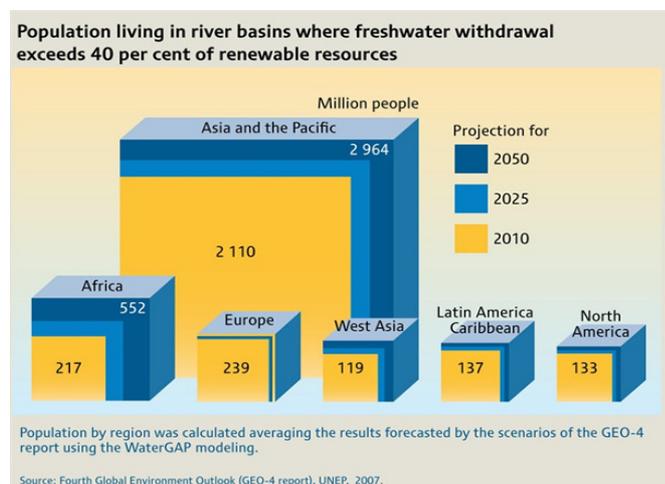
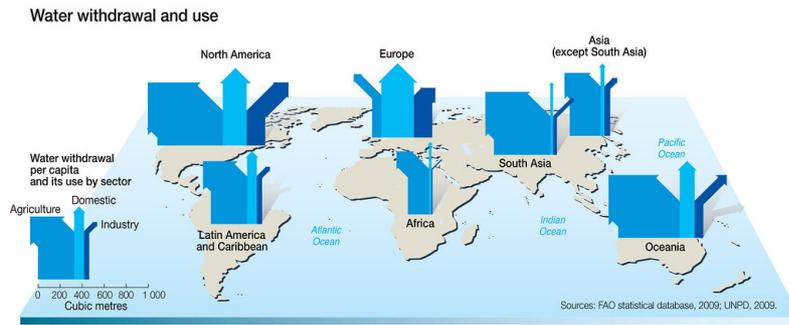


Figure 3 Population living in river basins where fresh water withdrawals exceed 40%

Source Fourth Global Environment Outlook, UNEP, 2021.

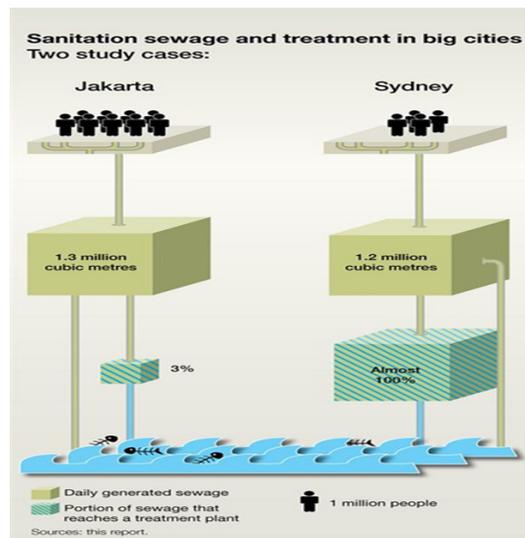


**Figure 4** Big city use rates and water, 3 billion people withdrawing > 40%

Source FAO statistical database, 2009; UNDP 2009.

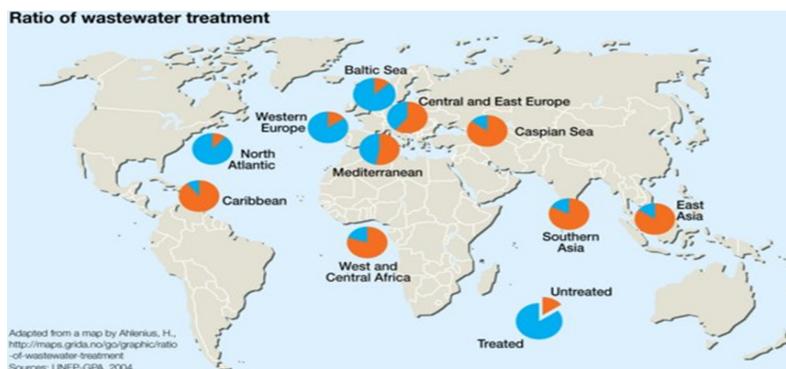
Only 3% of Jakarta, Indonesia and zero percent of Brazil sewage is treated.

Desalination should be made mandatory, as it is a Global Issue



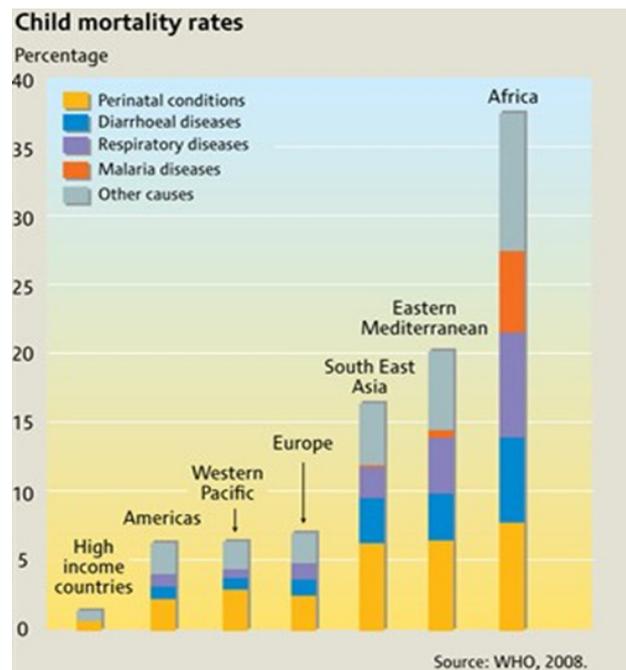
**Figure 5** Case study in big city for sanitation sewage and treatment

Source: this report



**Figure 6** Ratio of waste water treatment

Source UNEP-GPA, 2004.



**Figure 7** Child Mortality is an inverse function of waste water treatment percentages  
Source WHO, 2008

## Materials and Methods:

### Calculation

To pump 1 cubic meter of water up to storage at height 10 meters = 0.027 kWh

Electrical energy to aerate of 1 m<sup>3</sup> water = 0.003 kWh

Electrical energy to drive high speed fans for 1 m<sup>3</sup> = 0.003

Electrical energy to drive pumps and circulation condensing 1 m<sup>3</sup> = 0.002

Cost of sample system to process 840 m<sup>3</sup> per hour averaged over 5 year-time frame and 8,500 hours per year. Up-time, based on the use of Energime's Advanced Solar Dishes, Metallic Core Thermal Storage, a steam turbine to generate all electrical needs, high speed blowers, OHR Aerator/Mixers, and Absorption chiller. And, including infrastructure such as pre-fabricated building, piping, pumps, processing tanks, condensers, civil works and estimated engineering, construction and commissioning, as well as O&M total US\$21 million<sup>5,6</sup> for a Phase I budget including both Samui & Phuket Islands, and other islands with a combined volume of 35,700,000 m<sup>3</sup> at US\$ 0.70 per m<sup>3</sup><sup>37,8</sup>

### NOTES:

- 1.) Not including all other power and greenhouse installations, housing, etc.
- 2.) are on separate budget from all other activities
- 3.) stand-alone desalination system taking water out Gulf of Thailand

## Results

Cost Per Liter for Solar Desalination compare with Water Solutions AG versus RED SUN DESAL.

The solar collector field was designed to generate 10.2 MW<sub>th</sub> solar heat and the steam turbine to generate 2,4 MWe electricity. This is the cost to run Water Solutions desalination unit per liter, after diverting the electricity for other commercial use/sale.

Residual waste heat for steam condensation of 7.7 MW<sub>th</sub> at 86°C was modeled to drive the desalination process resulting in a fresh water output of 25-28 m<sup>3</sup>/h. Further research is recommended to focus on diurnal variations over one day and the optimization of thermal and electric power consumption for the System.

**Table 1.** Comparison of Water Solutions VS RED SUN Desalination

ITEM	Water Solutions	Red Sun Desal
Water Produced Cost USD/Litre	1.20	0.70
Water Produced m <sup>3</sup> /Day	670	1,000
CAPEX: USD/Installation	476,000	100,000
Energy Input: kWh/m <sup>3</sup>	2.75	1

Source: Solar thermal desalination plant in Egypt running for 6 years

## Discussion

RED SUN DESAL units produce ice at each location, starting at 5,000 kg per day. By adding a simple 2 m<sup>3</sup> absorption chiller and fan to each 20 foot container.

This ice sells in Thailand for 0.50 US\$ cents/kg, giving the potential for an income of \$2,500 per day/unit selling to the local fishermen. Typically, fishermen need 2 MT per day, to give significant potential for increase in revenues.

## RED SUN REFRIGERATION UNIT

A 40 ft container that service farmers & fishermen. Each unit is comprised of a flash freeze in the center, with deep freeze 5°C dead-end on one side for fish and meats, and featuring a fruit and vegetable freezer on the service end. This works especially well for agricultural outlet areas including sea ports, airports, and central markets as they provide storage and packaging suitable for exports.

## Conclusions

The need for desalination is acute world-wide and exceptionally large in both the developed countries including the United States, as well as developing world, starting in Thailand, where EGG will place 3 million per day units that are modular and mobile in 20 foot containers, with long-term government and state contracts from good credit countries like Thailand available on the state level, with mayors and governors for state water companies, starting at 3 million liters per day on 25 year contracts, with state backing.

The going rate for desalinated water on these large state contracts is between 2 to 2.4 cents per liter, which is 285% higher than the cost of the RED SUN desalinated water. The efficiency of RED SUN is due to the advanced solar trough and solar infrared collection systems of RED SUN that allow 96% of the sun's energy and spectrum to be collected, resulting in more than twice the thermal energy of competing CSP. With 3 troughs on the roof of the RED SUN DESAL UNIT, 1 million liters per day will be delivered, per unit, and finished with Energime's ozone injection with our proprietary MX sonication injector, for low-cost sterilization with high technology using healthy Ozone, rather than poisonous chlorine or even worse, fluorine.

## References

- AQUA CSP Study, Concentrating Solar Power for Seawater Desalination, German Aerospace Center (DLR), Institute of Technical Thermodynamics, Section Systems Analysis and Technology Assessment, Dr. Franz Trieb, Stuttgart, November 2007.
- MENA Regional Water Outlook, Part II Desalination Using Renewable Energy, Final Report, Fichtner, Stuttgart, March 2011.
- Review of feasible solar energy applications to water processes, J. Blanco, S. Malato, P. Fernandez-Ibanez, D. Alarcon, W. Gernjak, M.I. Maldonado, Centro de Investigaciones Energeticas, Medioambientales y Tecnologicas-Plataforma Solar de.
- Concentrating solar power for seawater desalination in the Middle East and North Africa, Franz Trieb, Hans Müller-Steinhagen, German Aerospace Center, Institute of Technical Thermodynamics, Stuttgart, Germany, in: Desalination 220 (2008) 165–183.

Application of direct steam generation into a solar parabolic trough collector to multieffect distillation, Lourdes García-Rodríguez, Ana I. Palmero-Marrera, Carlos Gómez-Camacho, Dpto. Física Fundamental y Experimental, Universidad de La Laguna, Spain, in: *Desalination* 125 (1999) 139–145.

Desalination system using waste heat of power plant, Hikmet S. Aybar, Department of Mechanical Engineering, Eastern Mediterranean University, G. Magosa, North Cyprus, in: *Desalination* 166 (2004) 167–170.

Integrated power, water and salt generation: a discussion paper, Mushtaque Ahmed, Aro Arakel, David Hoey, Mark Coleman, Department of Soils and Water Sciences, Sultan Qaboos University, Oman and Department of Land and Water Conservation, Australia, in: *Desalination* 134 (2001) 37–45.

Low temperature distillation system by Watersolutions AG, General plant and process description, Mark Lehmann, Buchs, Switzerland, 2012

## PRELIMINARY STUDY OF BIOCATALYST, PEROXIDASE FROM WEEDS FOR ITS APPLICATION IN PHENOL REDUCTION

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### Abstract

The aim of this study was to screen new sources of peroxidase and focus on the effect of the enzyme peroxidase on phenol, an organic pollutant found in industrial waste. The screening focused on weed, a worthless plant that can produce peroxidase, so it can be used as a source of peroxidase instead of horseradish. Crude peroxidase was extracted in acetate buffer pH 5.5 from 5 weed species: *Coccinia grandis* (L.) Voigt (pak tamlueng or ivy gourd), *Vernonia cinerea* (L.) Less (ya la ong), *Camchaya spinulifera* H. Koyama (kradum thong), *Ruellia tuberosa* L. (toi ting or popping pod), and *Trianthema portulacastrum* L. (pak bia hin). It was found that the peroxidase of *C. grandis* (L.) Voigt was the highest in both activity and specific activity with 5.89 units/ml and 1.61 units/mg, respectively. *T. portulacastrum* L. was found to have the lowest peroxidase activity and specific activity at 2.25 units/ml and 0.45 units/mg, respectively.

In addition, the effect of these peroxidase enzymes on phenol was investigated to use them for the removal of phenol pollutants in wastewater. It was found that these peroxidase sources can degrade phenol. All the freshly prepared crude enzymes showed a percent phenol removal of 79.4-91.5%. The phenol removal ability of all crude enzymes was only 3-36% after 14 days of storage at 4°C.

We show that all the weed species in this study can serve as tools for peroxidase-based remediation of phenol contamination. The phenol removal efficiency was 79.4-91.5% for all species.

**Keywords:** Enzyme, Peroxidase, Phenol degradation, Weeds

## Introduction

Enzymes are biomolecules found in living organisms, including plants, animals, and microorganisms, that have a catalytic character. The reaction added with enzyme accelerates the reaction rate by  $10^5$ - $10^{17}$  times compared to the same reaction without enzyme. Enzymatic catalysis is very specific to its reactants or substrates and takes place under conditions that are not extreme in terms of temperature, pH and pressure, the so-called mild conditions, which are different from the chemical catalytic reaction. Therefore, it has long been used in a wide range of industries such as dairy, beverage, pharmaceutical and consumer products (Nelson and Cox, 2013)

Peroxidase is an oxidoreductase enzyme that catalyzes the oxidation of various electron donor substrates such as phenol and its derivative by  $H_2O_2$ . It is a ubiquitous enzyme that is widely distributed in living organisms, especially in the plant kingdom. It is an enzyme known to play a very important role in scavenging free radicals in plant systems. These enzymes are used in medicine as important reagents in clinical diagnosis, immunoassays and histochemistry (Regalado et al, 2004) and in various enzymatic assays. New applications of this enzyme are known, such as bio-bleaching processes for wood pulp and treatment of phenolic waste (Kurnik et al, 2015).

Phenols and their derivatives are organic compounds widely used in various industrial processes such as disinfectants, plastics, paints, agricultural chemicals and pharmaceuticals. Improper disposal of these industrial wastes is the cause of water and soil pollution. Most phenolic compounds are toxic to living organisms even at low concentrations, and their vapors are corrosive to human. Exposure to them causes both acute and chronic toxicity, causing irritation of the skin, conjunctiva, mucous membranes of the respiratory tract, diarrhea, liver failure and possibly cancer. According to the notice of the Ministry of Industry of Thailand on the regulation of control standard for wastewater from factories of 2017, the content of phenolic compounds in wastewater should not exceed one milligram per liter (Notification of Ministry of Industry, 2017). As a result, before wastewater is discharged into the environment, phenolic compounds must be reduced or eliminated.

Weeds are plants that grow naturally and are classified as undesirable or useless plants. They can survive in a wide variety of environments, including the wilderness, lawns, fields, farm gardens and even construction sites. Because of the

special characteristics that make them very resistant to the environment, they can grow easily and quickly, giving a lot of seeds making it possible to propagate rapidly. Most of them have no economic value and often cause damage to the crop, such as scrambling for nutrient. ([http://www.rspg.or.th/plants\\_data/use/crops.htm](http://www.rspg.or.th/plants_data/use/crops.htm))

### **Objectives:**

1. Screening for new sources of peroxidase enzymes from weeds in Bangkok Thonburi University.
2. Screening for peroxidase enzymes capable of degrading phenol in synthetically contaminated water.

### **Literature Review:**

Duran and Esposito reported on potential applications of oxidative enzymes in wastewater and soil treatment in 2000. Peroxidase is an oxidative enzyme that has been used in the treatment of phenolic contaminants. Peroxidase from microorganisms (fungal class II peroxidases) and plant peroxidase (class III peroxidases) include horseradish peroxidase (HRP), soybean peroxidase, turnip peroxidase, bitter gourd peroxidase, and potato pulp peroxidase (Kurnik et al, 2015). The majority of peroxidase reported are higher plant peroxidases. HRP has been the most widely used class III peroxidase for phenol removal. However, the high cost of purified HRP reduces its usefulness for large-scale degradation bioremediation (González et al, 2008). Using microorganisms to treat pollutants is still an expensive option, due to the cost of culture media and culture condition.

### **Conceptual Framework:**

Since the commercial sources of peroxidase are from horseradish, the temperate plant (Veitch, 2004) is native to southeastern Europe and western Asia. Horseradish has hardly been cultivated in a tropical area like Thailand. Which has a tropical climate and plant species native to the tropic's climate is in general more biologically diverse or biodiversity that in other latitudes. And peroxidase is known to be an ubiquitous enzyme widely distributed in the plant kingdom. So, it is worthwhile to explore the new source of peroxidase from the plant's species of Thailand, especially in the weeds, which is a worthless plant that can produce peroxidase with the ability to phenol degradation. It is the value-added of weeds.

### Research Methodology:

The weed samples in this study were collected at the lawn area of Bangkok Thonburi University in Bangkok and are called: *Coccinia grandis* (L.) Voigt (pak tamlueng or ivy gourd), *Vernonia cinerea* (L.) Less (ya la ong), *Camchaya spinulifera* H. Koyama (kradum thong), *Ruellia tuberosa* L. (toi ting or popping pod), and *Trianthema portulacastrum* (L.) (pak bia hin).

### Crude enzyme extraction:

The sample was washed thoroughly and the whole plant was cut into small pieces and homogenized in cold 50 mM acetate buffer pH 5.5 or 50 mM potassium phosphate buffer pH 6.5 at a ratio of 1:2 (w/v) and 2% PVPP (w/v) was added during homogenization. The homogenate was filtered with a gauze cloth to remove plant debris and the filtrate was further centrifuged at 8,000 rpm for 15 min at 4°C to remove other small contaminants. The supernatant was filtered with Whatman filter paper and stored as a crude extract at 4°C.

### Enzyme peroxidase and protein assay:

Peroxidase activity was assayed by the spectrophotometry method based on the production of chromophoric substances (color complex) at the end of the enzymatic reaction. Whose absorbance in the visible range makes the reaction easy to monitor. In this study, 3,3'-diaminobenzidine tetrahydrochloride (DAB) (Herzog and Fahimi, 1973) and 4-aminoantipyrine (Am-NH<sub>2</sub> or 4-AA) (Trinder, 1996) were used as substrates, and the chromophoric substances formed at the end of the enzyme reaction were brown colour with the  $\lambda_{\max}$  at 465 nm and pink colour with the  $\lambda_{\max}$  at 510 nm, respectively.

### Enzyme peroxidase activity with 3,3'- diaminobenzidine tetrahydrochloride

In order to obtain interesting samples for further investigations, the crude extracts were assayed in with DAB. The reaction mixture was carried out at room temperature as follows: the crude extract was mixed in 3.0 ml of reaction mixture containing 2.9 ml of 25 mM DAB in 50 mM acetate buffer pH 5.5 and 50  $\mu$ l of crude extract, then this mixture was shaken and used as blank at 465 nm then 50  $\mu$ l of 1 mM H<sub>2</sub>O<sub>2</sub> was added to start the reaction, which was carried out at room temperature for 1–2 min.

### Enzyme peroxidase activity with 4-aminoantipyrine

The assay system was carried out to determine the specific activity of the selected samples. The reaction was carried out by adding 50  $\mu\text{l}$  of crude extract to a reaction mixture tube containing 450  $\mu\text{l}$  of 100 mM phosphate buffer pH 6.5, 100  $\mu\text{l}$  of 100 mM phenol and 50  $\mu\text{l}$  of 60 mM  $\text{H}_2\text{O}_2$ , then this mixture was shaken and before adding 250  $\mu\text{l}$  of 9.6 mM Am-NH<sub>2</sub> to start the reaction, which was carried out at room temperature. The reaction mixture without phenol,  $\text{H}_2\text{O}_2$  and the crude extract was used as a blank at 510 nm.

### Protein determination

Protein concentration was determined by the Lowry's method using bovine serum albumin (BSA) as the standard protein (Lowry et al., 1951).

### Phenol removal study and residual phenol detection:

The phenol removal experiment was performed using a phenol solution concentration of 10 mg/ml as the synthetic phenol wastewater. The reactions for phenol degradation were carried out in a 2.5 ml reaction mixture containing 0.1 ml of 10 mg/ml phenol, 0.5 ml of 60 mM  $\text{H}_2\text{O}_2$ , 0.1 ml of 1 M phosphate buffer pH 6.5 ml and 0.1 ml of crude enzyme samples. Distilled water was added to the indicated volume. The reactions were incubated for 1 h at 40°C. After incubation, the residual phenol was measured using a ferric chloride test by the addition of 0.2 M  $\text{FeCl}_3$  solution and dilution with 5 ml of distilled water. The reaction was further incubated for 30 min at room temperature. The distilled water was used as blank at 540 nm. The 2.5 ml reaction mixture without crude enzyme samples was served as the control reaction (total phenol) ([https://en.wikipedia.org/wiki/Ferric\\_chloride\\_test](https://en.wikipedia.org/wiki/Ferric_chloride_test)).

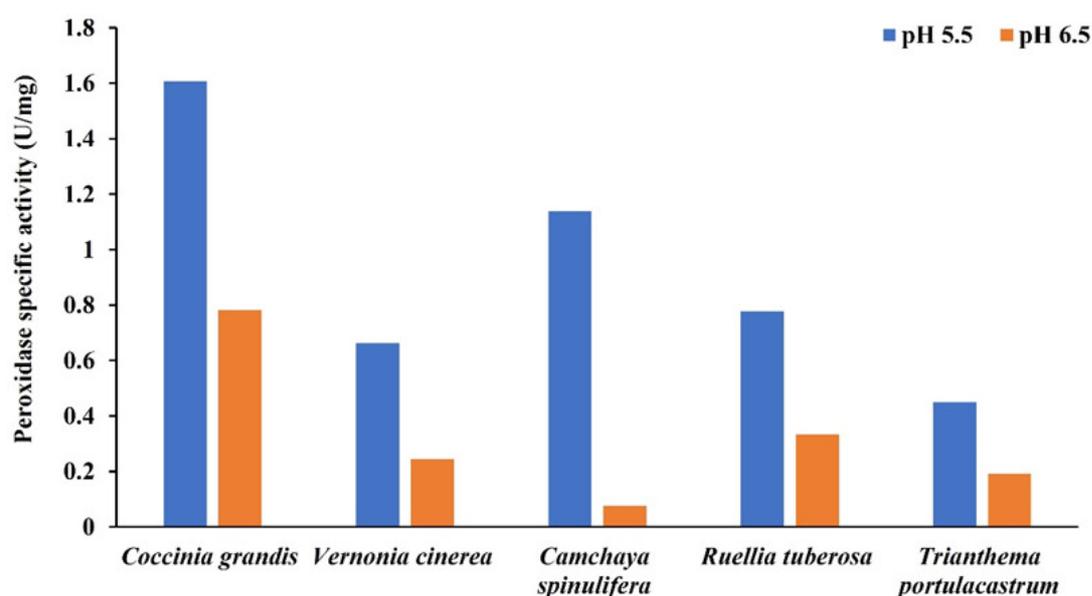
### Results:

For screening new peroxidase sources from weeds, 5 weed species were selected; *Coccinia grandis* (L.) Voigt (pak tamlueng), *Vernonia cinerea* (L.) Less (ya la ong), *Camchaya spinulifera* H. Koyama (kradum thong), *Ruellia tuberosa* L. (toi ting), and *Trianthema portulacastrum* L. (pak bia hin). Crude peroxidases were extracted in acetate buffer pH 5.5 and peroxidase activity, protein content, specific activity and the phenol removal activity were determined. All the results were estimated from the duplicated experiments as the following.

**Table 1.** The peroxidase activity, protein content and specific activity of crude extract of weed species in acetate buffer pH 5.5. (N = 2)

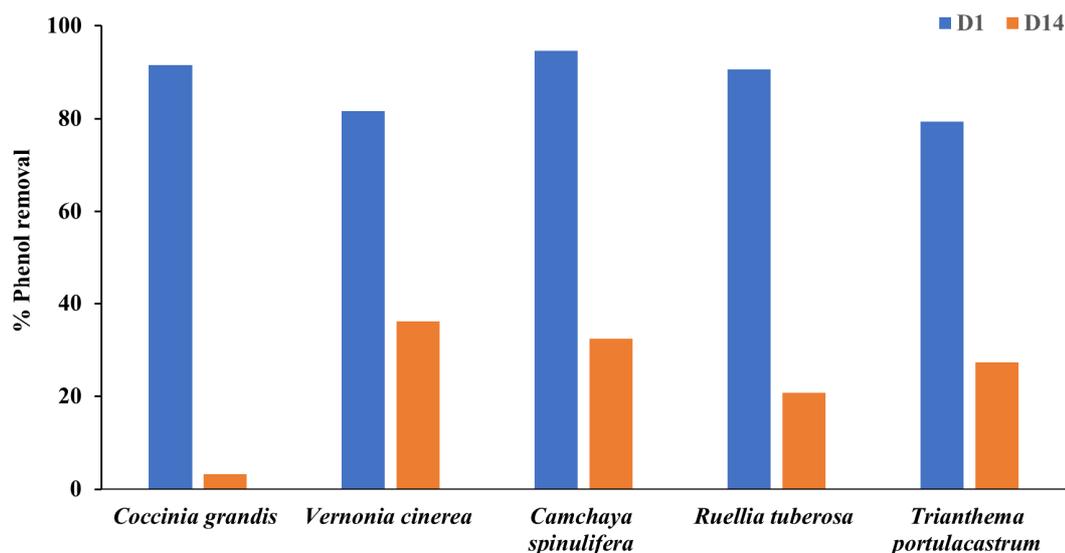
Weeds species	Peroxidase activity (unit/ml)	Protein content (mg/ml)	Specific activity (unit/mg)
<i>Coccinia grandis</i> (L.) Voigt (pak tamlueng)	5.89	3.67	1.61
<i>Vernonia cinerea</i> (L.) Less (ya la ong)	3.68	5.56	0.66
<i>Camchaya spinulifera</i> H.Koyama (kradum thong)	5.68	4.99	1.14
<i>Ruellia tuberosa</i> L. (toi ting)	2.39	3.08	0.78
<i>Trianthema portulacastrum</i> L. (pak bia hin)	2.25	5.00	0.45

The peroxidase of *C. grandis* (L.) Voigt showed the highest activity and specific activity with 5.89 units/ml and 1.61 units/mg, respectively. *T. portulacastrum* L. showed the lowest peroxidase activity and specific activity with 2.25 units/ml and 0.45 units/mg, respectively. The extraction buffer also has an effect on the specific activity of peroxidase. In Figure 1, the specific activity of this crude peroxidase was compared when extracted in acetate buffer pH 5.5 and phosphate buffer pH 6.5.



**Figure 1.** Comparison of specific peroxidase activity of different sources when extracted with 50 mM acetate buffer pH 5.5 (blue) and 50 mM phosphate buffer pH 6.5 (orange).

These crude peroxidase enzymes were subjected to the phenol removal experiment by using the synthetic phenol in the laboratory model. These crude peroxidases were found to be capable of degrading phenol. All the freshly prepared crude enzymes showed a percentage phenol removal of 79.4-91.5%. The phenol degradation ability of all crude enzymes was only 3-36% after 14 days of storage at 4°C. (Figure 2)



**Figure 2.** Comparison of percent phenol removal by crude peroxidase of different sources. Extract on day 1 (freshly prepared) (blue) and after storage at 4°C, for 14 days (orange).

### Discussions:

The application of enzyme technology for the biodegradation of phenol in wastewater has become more attractive because of the properties of enzymes. Their catalytic reactions occur under specific conditions and are specific, making them more efficient than physical and chemical methods. Peroxidase from higher plants, including horseradish peroxidase, is the most studied enzyme for the biodegradation of phenol in wastewater. However, the high cost of purified HRP detracts from the utility of HRP for large-scale bioremediation (González et al, 2008). Using microbes to degrade contaminants is still an expensive process due to the high cost of producing the microbial culture. In addition, inhibitors present in the wastewater may suppress the growth of the culture and the expression of enzymes involved in the degradation of phenolic compounds may depend on the growth phase of the

organism (Qayyum et al, 2009). The waste product of the starch industry, potato pulp, was used to decontaminate phenol-contaminated wastewater and showed the ability to degrade phenol with a removal efficiency of over 95% (Kurnik et al, 2015).

Our study was on screening new sources of peroxidase enzymes from weeds at Thonburi University, Bangkok. The crude peroxidase from 5 species were proved to be capable of degrading phenol. All the freshly prepared crude enzymes showed a percentage phenol removal of 79.4-91.5%. It was demonstrated that all the weed species used in this study can be used as tools for peroxidase-based phenol pollution remediation.

### **Suggestions:**

Our country, Thailand, is the land of biodiversity of plant and animal resources, and peroxidase is known to be an ubiquitous enzyme widely distributed in the plant kingdom. So, it is worthwhile to explore new sources of peroxidase from the plant species in Thailand, especially in weeds that are worthless but can produce peroxidase, so they can be used as sources of peroxidase instead of horseradish. In addition, all 5 species in this study showed phenol degradation activity, and the percent phenol removal ranged from 79.4-91.5%. This suggests that weeds could be extracted to treat phenol contamination. This is the added value of weeds in Thailand.

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### **References:**

- Duran, N., and Esposito, E. (2000). Potential applications of oxidative enzymes and phenol oxidase like compounds in wastewater and soil treatment: a review. **Appl Catal B Env**, **28**, 83–99.
- González, P.S., Agostini, E., and Milrad, S.R. (2008). Comparison of the removal of 2,4-dichlorophenol and phenol from polluted water, by peroxidases from tomato hairy roots, and protective effect of polyethylene glycol. **Chemosphere**, **70**(6), 982–989.
- Herzog, V., and Fahimi, H.D. (1973). A new sensitive colorimetric assay for peroxidase using 3,3'-diaminobenzidine as hydrogen donor. **Anal Biochemistry**, **55**(2): 554-562

- Kurnik, K., Treder, K., Skorupa-Kłaput, M., Tretyn, A., and Tyburski, J. (2015). Removal of phenol from synthetic and industrial wastewater by potato pulp peroxidases. **Water Air Soil Pollut.**, **226**:254 (DOI 10.1007/s11270-015-2517-0)
- Lowry, O.H., Rosebrough, N.J., Farr, A.L., and Randall, R.J. (1951). Protein measurement with the Folin phenol reagent. **J. of Biological Chemistry**. **193(1)**, 265–75.
- Nelson, D.L., and Cox, M.M., and Lehninger, A.L. (2013). Principles of biochemistry: 6<sup>th</sup> Edition W.H. Freeman; New York
- Notification of Ministry of Industry regarding Industrial Effluent Standards B.E. 2560., Issued on 30<sup>th</sup> May B.E. 2560 (2017). Ministry of Industry, Thailand
- Qayyum, H., Maroof, H., and Yasha, K. (2009). Remediation and treatment of organo-pollutants mediated by peroxidases: a review. **Crit Rev Biotechnol.**, **29(2)**, 94–119.
- Regalado, C., Garcia-Almendarez, B.E., and Duarte-Vazque, M.A. (2004). Biotechnological applications of peroxidases, **Phytochemistry Rev**, **3**:243–256.
- Trinder, P. (1966). Determination of glucose in blood using glucose oxidase with an alternative oxygen acceptor, **Ann Clin Biochem** **6**, 24
- Veitch, N. (2004). Horseradish peroxidase: a modern view of a classic enzyme. **Phytochemistry**, **65**:249–259.
- [http://www.rspg.or.th/plants\\_data/use/crops.htm](http://www.rspg.or.th/plants_data/use/crops.htm)
- [https://en.wikipedia.org/wiki/Ferric\\_chloride\\_test](https://en.wikipedia.org/wiki/Ferric_chloride_test)



# Research Presentation

Subject group: Social Sciences  
& Humanities



## A CREATIVE HUAIPHLU COMMUNITY SONG – BASED ON CONCEPT OF WARMING HARMONIOUSLY AIMS

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### Abstract

A Huaiphlu community, the richness values in Cultural capital unit which appeared on knowledge from the past, intellectual cultural property and outstanding on diverse identities of heritage environment sites. This is homeland aspect and proudly awareness adsorbed, appreciating through music creator inspiration and forward perspective thinking beyond new version development on its community site together and Interdisciplinary methods as 1) Investigation in Cultural Significances Values 2) Resources Development by Heritage Interpretation into music -lyrics verse elements. Creation within 3 languages of Thai –English and Chinese for warming harmoniously aims which naming Huaiphlu my fine unity homeland. Hence, music creator adapting international principle of UNESCO Charter in which outcomes aspect as Heritage quality management, Interpretation Heritage resource with music interpreter role, Music elements - lyrics verse creation process in Rhyme Theme Poetries imagination through Conceptual -Thematic Framework arrangement, Theme design, Music trend, Contemporary music, Music interpreter, Transpose practice, Assess and Approval to Public showcase for Huaiphlu villagees would be greeting a warming harmoniously to each other's and infinities sustainable communities in cultural strengthen respectfully.

**Keywords:** Huaiphlu Community song, Warming Harmoniously Aims

**Type of Creative work:** Music **Field:** Creative Fine Art

## Introduction

A Huaiphlu Community is a community that maintains cultural capital in a variety of contexts related to values, knowledge, wisdom, and beliefs that have long been bound. resulting in the formation of rules, system of order, way of life and coexistence in a good society as a result, this Huaiphlu community is outstanding has a very locally identity.

Music creator creates a feeling of pride and appreciation for the heritage of cultural capital, values, knowledge, wisdom, and unique characteristics of cultural heritage. The diverse lifestyles and environments of the Huaiphlu community because it is the hometown of music creator. Especially this feeling of love and cherishing the values that have been lasting for more hundreds of years has inspired me. Meaning of creating a new perspective new goal to create ideas for the creative process of cultural capital development of the Huaiphlu community area, up 3 types as information of inspirational methods which consists of 1) A process of exploring wisdom, knowledge, values, and cultural characteristics of the community; 2) A process of bringing cultural information to develop, design and create music to convey meaning in poetry with lyrics in 3 languages, namely Thai, English, and Chinese to promote unity.

The music creator have taken the international charter of UNESCO in various fields to govern and expand the results according to international standards, namely cultural heritage management music interpretation Heritage resource with music music-lyrics elements creation using to be used as specific songs of the community to describe the environment of the settlement to promote love and unity to promote the organization culture of Huaiphlu community to be strong, love, care and protect each other. To show the identity of the Huaiphlu people and to publicize the Huaiphlu community as well as to sing on various occasions.

## Objective

The music creator aims at data storage. according to the method of UNESCO Extracting the distinctiveness of the area to create the song as follows.

- 1 . To survey values and cultural characteristics of Huaiphlu Community, Nakhon Chai Si, Nakhon Pathom.Thailand.

2. To develop information on arts and culture of the area to design music creations for convey meanings in poetry with lyrics in 3 languages, namely Thai, English, and Chinese to enhance unity.

## Literature Review

Literature study of the survey study area in Huaiphlu community, the survey study was conducted in accordance with the principles of the Thai ICOMOS and the International Tourism Charter. Regarding the values and cultural characteristics of the Huaiphlu community (Cultural Significances Values, 1999) selected information was found as follows.

### Historical Values

Ayutthaya period, King Taksin ordered Phraya-Mahakasatsuek to control the army up to Vientiane because the King of Vientiane rebelled against the rule of Siam. In this regard, Phraya-Mahakasatsuek has forcibly Vientiane families in various cities to Bangkok and arranged for the people of Vientiane to live in the local areas along the river valleys in the routes that brought people some villagers, including Viceroy of Chayaburi and Mom-Khamron wife's Prince, gathered Vientiane people to settle down on the Nakhon Chai Si River at Khlong Phlu Subdistrict, Nakhon Chai Si District. Nakhon Pathom Province and nearby. ( Sira Arsavaderros,1979 ) Since then, when families of Vientiane people and nearby have a prosperous economy. And with great faith in the Buddhism temple image, he persuaded him to work together to give up property and money to establish the Sima of Wat Khlong Phlu in 1786 A.D. Later, it was bestowed with Wisung Khamvasi in 1788 A.D. Wat Khlong Phlu is therefore like a melting pot of cultural heritage. The unity of the Khlong Phlu community or Huaiphlu today. (Department of Religious Affairs, 1986).

### Social Values

In 1852 A.D., during the reign of King Mongkut, he built the Pathom Nakhon Palace on the east side in front of Phra Pathom Chedi for his stay with great faith in the restoration of Phra Pathom Chedi to make it permanent. This is to make it convenient for people to travel to worship Phra Pathom Chedi. His Highness therefore ordered the Chedi Bucha Canal to be digged for a waterway to connect with cities such as Ratchaburi, Kanchanaburi, Suphan Buri and Bangkok (Nakhon Pathom Cultural Centre, 2008). His Highness enlisted villagers from many different ethnicities. especially Chinese from overseas, such as Manchu, whose long hair pigtails. The Chinese this time graciously gave a numbering on their hand and received a special favor. When the restoration of Phra Pathom Chedi was completed. They separated and moved to different places ,Huaiphlu e.g.

### **Aesthetic Values, Scientific Values and Association Values.**

This group of Chinese people spread to settle down. Some of them are good at gardening, they go to gardens and grow vegetables in the low-lying fields in the style of overseas Chinese. part of the trade. Therefore, they formed a Chinese market along the Nakhon Chai Si River, called Huaiphlu Market. There are also Vietnamese who migrated from South Vietnam at the end of the reign of King Rama 2 , who initially lived in the Yuan Temple area, Samsen Bangkok, later moved in in Huaiphlu Market These Vietnamese specialize in photography. Another group-built houses by the river side. because he specializes in fishing, casting nets, fishing, etc.

Later, when the Huaiphlu community was more prosperous. with easy to come make a group of some Ethnic groups in the highland area have migrated to live together with the Huaiphlu community, until reconciliation Married with a solid family Love, unity, and harmoniously. Because this Huaiphlu riverside community has been established for more than hundreds of years. It retains many cultural heritages, such as music, long drums, vernacular architecture of the Vihari, Sima, Mondapa, pavilion, houses, farming, gardening, museums, arts, and especially the food culture.

### **Transmission from Significances Values into Engage: Enrich : Enhance**

Based on concept of Cultural Capital : Proceeding Modification. Music creator has considered studying the plans for higher education. Focusing on a produce and develop the country's manpower A.D. 2021-2027, of the Ministry of Higher Education, Science, Research and Innovation found that there are 3 strategies that penetrate into Three important visions are: higher education creates people Build wisdom for sustainable development of Thai society There are important projects that are interested in expanding the results for the creation of music. It is an integrated project to raise the economy and society in each sub-district idea as **1 sub-district, 1 university** (Anusarn Udom Suksa, 2020) by supporting the project implementation of music creators to get involved with the community in the university involved. It is in the context of building and developing common areas for upgrading learning and tourism as Creative Economy, which is a cooperation and commitment to support the artistic and cultural prominence of each area in the community. By using the above outstanding information as a driving framework for the development of the area and then selected and created to create the Huaiphlu community song.

มหาวิทยาลัยกับการขับเคลื่อนศิลปะและวัฒนธรรมเพื่อการพัฒนาเชิงพื้นที่

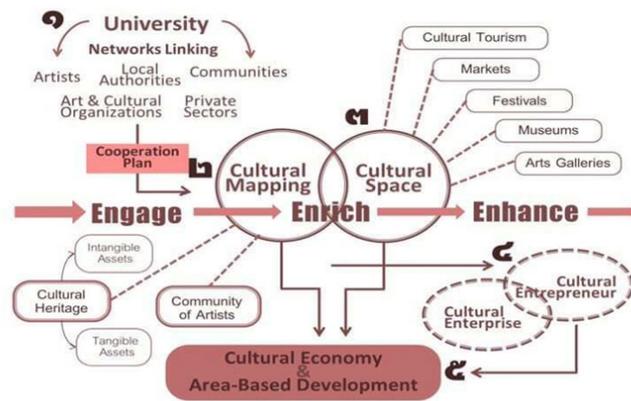


Figure 1. Diagram of Cultural Economy which expand to *engage- enrich- enhance*

Cited from Anusan Udomsuksa

Music creators team considered that the Huaiphlu community was culturally outstanding. but never hadn't any music producers of community song. Therefore, deem it appropriate to plan to explore the information of the cultural area to design and create music. "Huaiphlu, My fine homeland " to strengthen unity and promote the community to be like a strong organization with an isolated culture as a *Engage model*.

Conceptual Framework

Exploration study to create music “Huaiphlu : My fine homeland ” to convey meaning in poetry with lyrics in 3 languages : Thai, English, and Chinese to promote *Enrich unity*. Distributed by presentation this creative work papers.

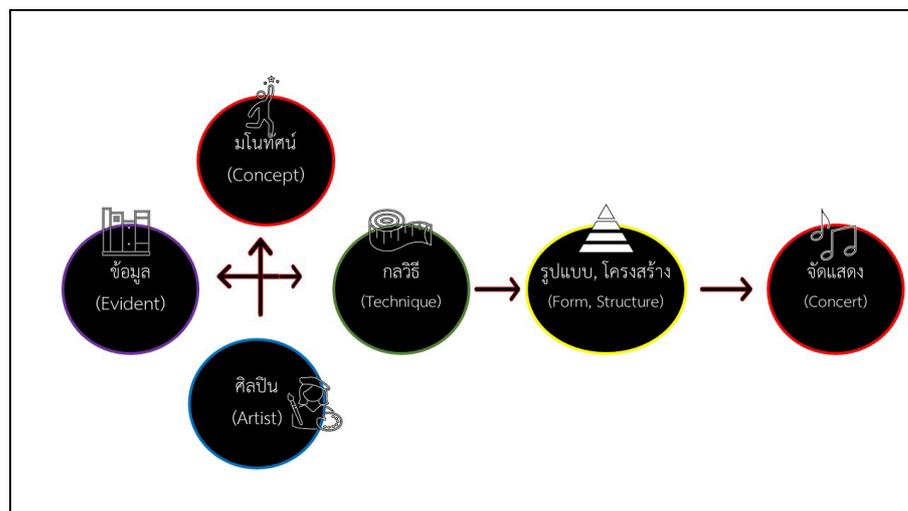


Figure 2. Process of Music Principle creating which full lyric verse,melody page7-9

Source by music creator team

### **Creative Methodology**

1. Meeting of the music creators' committee to study Values and Characteristics of Huaiphlu Community.
2. Transcribe and compile the information into documents according to the topic. Music Creativity Model.
3. Classify, analyze, evidence, resources to extract content, story, identity, distinctiveness for preparing to expanding into music.
4. Bring outstanding features, stories, and keywords to the conceptual framework. creative framework, attributes, character, lyrics-rhyme, melody, form, emotion, image, and then proceeding with the music creation process.
5. Submit articles for consideration for international conferences.
6. Showcase the creative song to the public.
7. Collect resources and draw conclusions.
8. Meeting of the research committee, inspecting, preparing the final book and submitting the music creation song.

Creative on colorful work outcomes

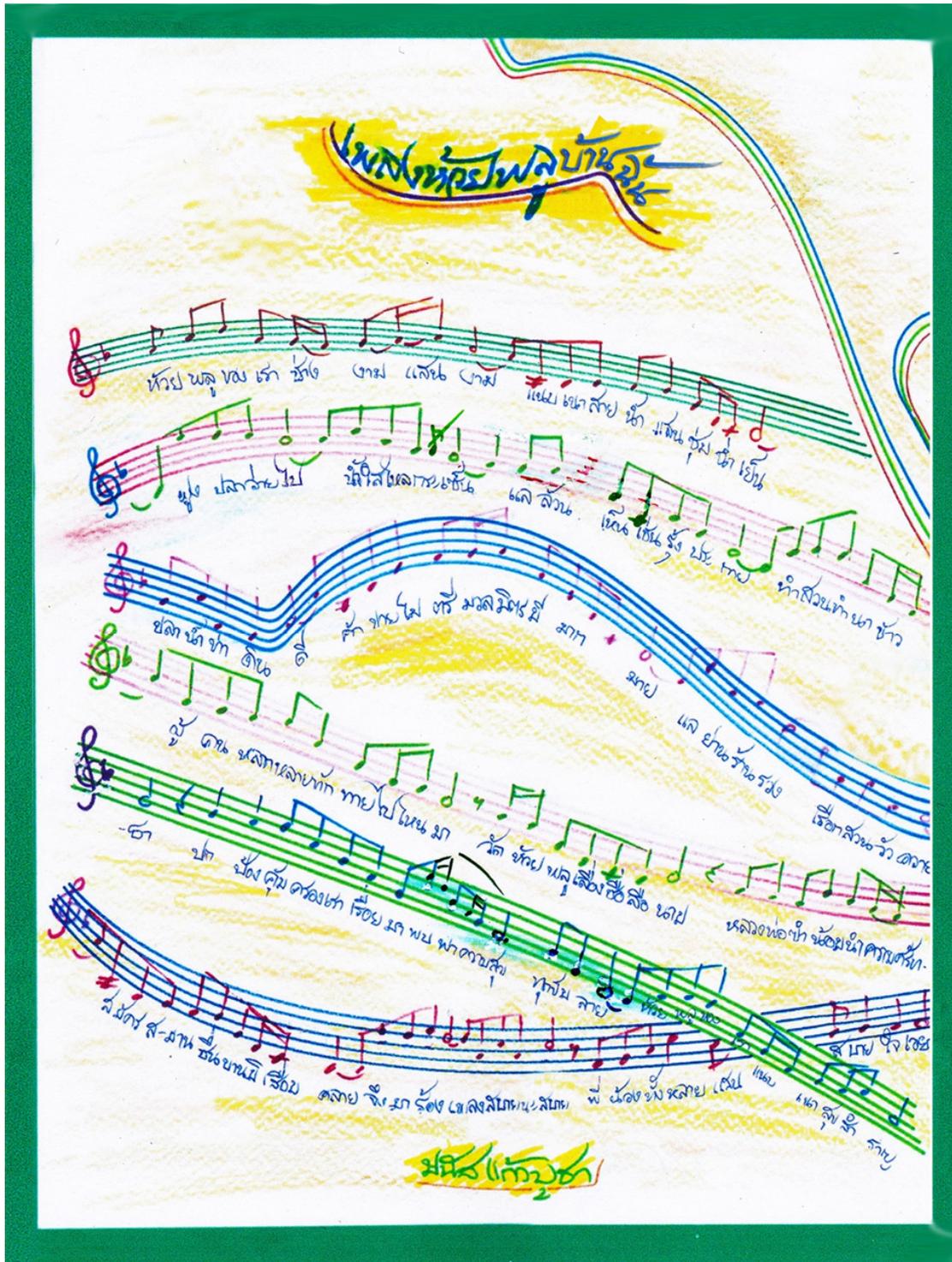


Figure 3. Huaiphlu: My fine homeland, Thai version. Source by music creator team  
Hand designed for commune Art exhibition which asking by National Artist



Figure 4. Huaiphlu: My fine homeland, English version, Source by music creator team

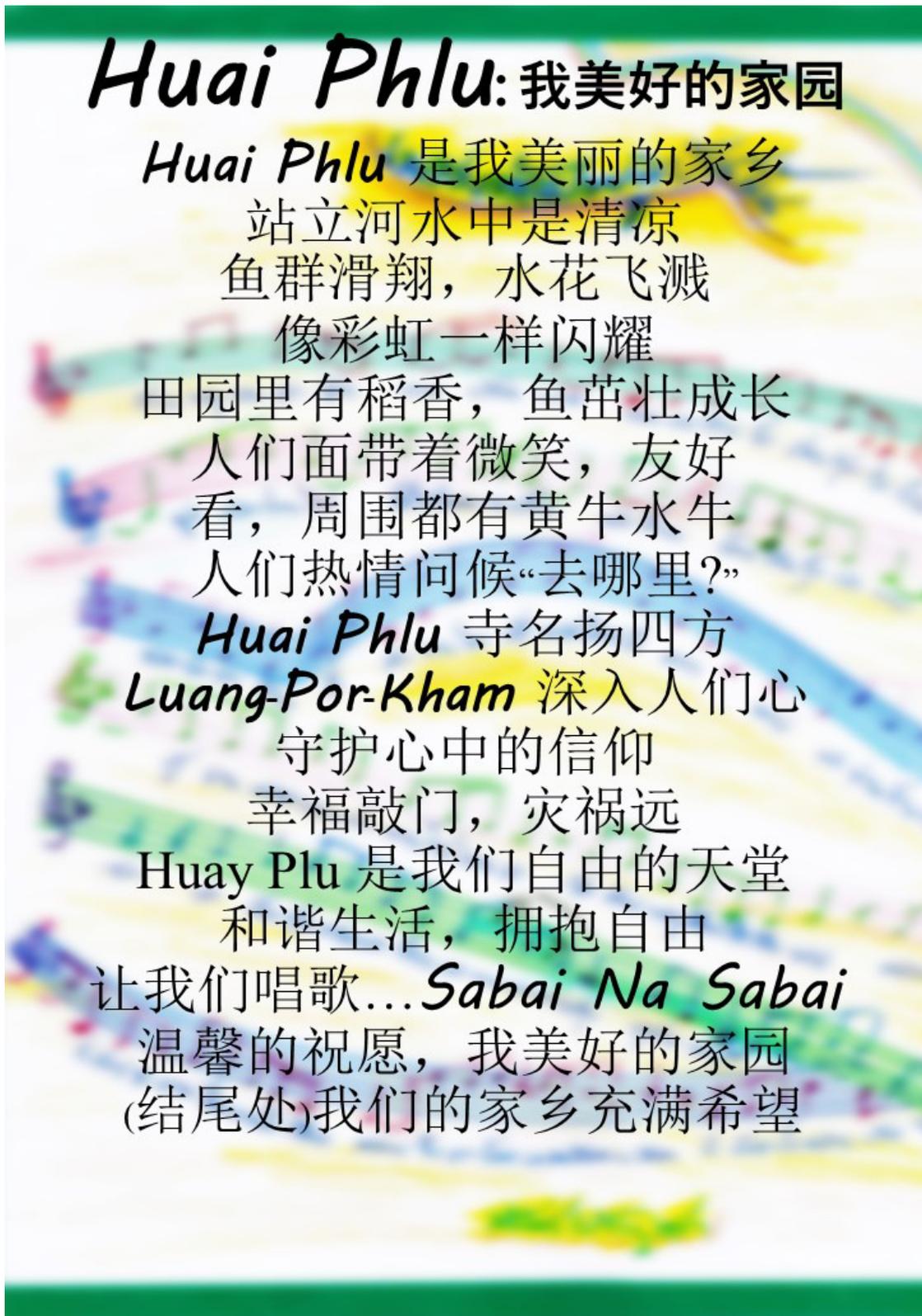


Figure 5. Huaiphlu: My fine homeland, Chinese version, Source by music creator team

## Outcomes of Music elements design and analysis

### Forms: Perspective thinking

**Enhance** outcomes of the analysis in Music Perspective thinking are combined, *Enhance* with the details of every topic. Selected and created each piece to creating a Huaiphlu : My fine homeland, aims of the model such as music creator analyzing from Cultural Significances Values for classify *The Theme* and expand to each topic of Values Outstanding texts, keywords, contexts, emotion, melody-Lyrics and The Themes are as follows :

Theme group	Theme	Sub-Theme	Sub-Theme I	Sub-Theme outline	Theme interpretive
<i>Huaiphlu values</i>	<i>Texts outstanding</i>	<i>Keywords</i>	<i>Contexts</i>	<i>Emotion</i>	<i>Melody-Lyrics</i>
History value	Settlement placing	River side	Ecology	Happiness	Passage 1
Social value	Agri-farm, market	Diverse	House ,pet	Friendships	Passage 2
Good deeds value	Temple ,heritage	Luang Por Kam	Faithful	Peaceful	Passage 3
Associate value	Huaiphlu villagees	Homeland	Sabai wellbeing	Proud harmonious	Passage 4

**Figure 7.** Music perspective thinking in Themes analyze which full lyric verse page7-9

Source by music creator team

### Music imagination proposed

1. Must to a simple melody that is easy to remember because it is a public song.
- 2 . Rhythm, must be easy to sing for people who do not have a strong background in music.
3. The request must be a Kam Dode-monosyllabic word as taught by Teacher Chan Khamwilai because the musicrhyme jump into origin Thai word. People with little learning or Chinese people will pronounce it easily. as well as easy to communicate without having to interpret
4. Content binding the story in each paragraph, each verse mainly adheres to the analytical table of Part 2, starting with Motif to be a memorable identity.
5. Creation of melodies by creating a rhyme pattern of Thai songs according to Thai prosody, contemporary songs use verse rhyme, form of Thai octameter poems and another's language need to be followed too
6. The melody has 4 passages according to the general Thai style of music called Theme and Variations, is a form that consists of two main passages: Theme or main melody or Variations form.

7. The melody is on Bb scale. At the end of every verse's each passage, there is a similar melody that looklike inviting to join chorus, the opportunity to participate.

8. Set a xylophone as the hero. Flute as a sub-hero and there are international instruments such as bass, harp, piano, clarinet, and stringed instruments produced by electronic synthesizers in the recording room. It is stipulated that only the playing is performed to have a streamlined appearance as a karaoke which can be sung in all 3 languages.

The meaning of the song is that homeland themselves its almost comfortable, there are many people, friendships, there is a temple as the centre of happiness, so we love each other and unite as one. build strength, love, protect, help each other. compilation received willingness from Ouan Nakhonchaisri, a person from Huaiphlu, helping to think and record the sound.

### **Melody**

1. By placing the music genre in the Bb scale, then music creator composes the main melody. by prescribing it as a first motif  to be the identity of the melodic rhythm and then move the sound-Modulation to connect the melody to some highs, some lows, so it comes down to the middle sound at the end of the piece. It's like giving the friends' opportunity to participate in Refrain: Chorus.

2. Emotion: This song has a casual life, harmonious tone that is not universal harmony, but is a multiple melody of heterophony in Thai style, or may use chords in the minor scale, it calmer when reaching the 3rd verse passage about the temple, so can use Blues chord, such as D7 A7 , which gives a different mood but still comfortable, keening to listener ears.

3. The length of the melody in 2/4 Time signature, 1 Passage has 32 beats, percussion rhythms on moderate speed as Moderato tempo.

4. On the part of the petition, music creator wrote the Thai verse first because it had the identity of free Melismatic, then composes it in English like a translation by cultural verse terms, continue with Chinese which is difficult enough. Because the Chinese in Huaiphlu Market don't speak Mandarin. but speak Teochew ultimately, creators team agreed that Mandarin should be used together with Urhu Chinese fiddle.

### Rhythm

“Huaiphlu: My fine homeland” uses a pattern Slow soul, slow-medium speed on Merdorato, while using the bass as a percussion with melody rhythm , and the bass makes it very colorful on Bass line.

### Character

The song s character which the richly of simply and causality in Thai vernacular rhyme sound of ornaments as the phrase of Ranard Ek xylophone together Klui, Sore –U instruments and melisma of Thai registrar - voicing for melodic of introduction through viilagees who unison accompaniment’s singers on passage ending mostly. This is the semantic emotion of Huaiphlu relaxation, simply lifestyle.

The motif as  raising catching through main musical rhyme syntax for expanding slide-slur on higher modulation phrase I, low phrase II and middle phrase III and refraining chorus on passage finishing, here the identity of the song

Above motif segments of the rhyme syntax phrase in which semantic of gladly asking and replying interpretative to villagees conversation, greeting to each other, Lyrics verse of 3 international languages of music of the world which meaning of kindly sharing through all people whose can enjoying singing together as well as Refrain: chorus.

### Harmony

Thai colorful of diversities heterophony of intellectual cultural skills in improvise on counterpoint – interrupt, Thai melismatic in throaty Hymn mostly the thin harmony but rich skills which camefrom Thai Mode relationship of the 4<sup>th</sup> interval.

### Texture

The identity of this song is that it is a community song that was created from a study of the Huaiphlu community on resources survey to analyze complex academically design and created this song by Emic awareness villagees who clearly understanding the community's way of life ,especially being a musician too (Thitinun, 2021)

### Identities

**Conceptual Framework**, creative process of Perspective Thinking on 13 step’ s triangles on page7 which full of perfectly in public showcase, meaning identities acceptance.

**Melody-Lyrics**, 3inter languages versions, mean identify work forselection, organization and interpretation in rhyme, semantic, syntax, voicing and accompaniment in identities perception, approval by native's expertise

**Harmonious Useful**, Huaiphlu song which meaning of communities identities agreement by public critical that everyone love to sing together, sharing loving mind.

## Conclusion

From Engage to Enrich with Enhance Outcomes of the creative process inspiration from homeland awareness which perspective thinking beyond cultural capital, creative economy, proceeding modification, heritage quality management, adapted and applied interdisciplinary especially the Charter of ICOMOS Thailand Which is a professional organization for cultural heritage of the world, because music and other arts and sciences are the heritage of all mankind. Music creator,creating a song from the evidences of research survey into a song naming Huaiphlu : My fine homeland.This work is one of the models that those wishing to present their work for academic positions may deem appropriate. because music creator has brought the proposal Criteria for applying for academic positions in the field of art and design Let's use it as a concept of music trends , combined with the concept of contemporary music creativity above that The song from friends to friends ( Morache F.,2014)., which is a song that reinforces unity in the minds of people as gained to Greeting Warming Harmoniously Aims for Huaiphlu with permanent account community.

1. Documented information of the community on cultural heritage in terms of values and cultural characteristics of the Huaiphlu community. Which is carried out in accordance with international standard conventions should be permanently documented, images, media ready to be used in various ways.

2 . A community song that tells a story through sound is appearance on. complete melody with origin stories that have been endorsed by a wide range of experts, ready to be published , public showcase or put into a multi-purpose event.

3. A initiated of documentary media in 3 languages, namely Thai, English and Chinese was shown which along to communication of the community's songs, If when it is a tourism attraction, it can be used singing to welcome or exchange knowledge with tourists in an international standard. because the principles of UNESCO's pattern are applied as well as having passed an evaluation from an expert.

4. Huaiphlu villagees will be a community used to welcome tourists to learn. to appreciate the way of life and traditional food seasoning. Gastronomy the vernacular food, another way that has the potential to lead to the eyes of the Thai community and the international community too.

### Discussions

From Engage to Enrich with Enhance by Create a song for the Huaiphlu community to strengthen unity, inspired by the history and way of life and obtaining by music creator to interpret from the study of sites evidences, music elements literacy and interviews, expanding through music creation process outcomes for community identity which perspective thinking on music interpretation role.

Music creator survey studied the characteristics of the way of life's and other elements to the song of unity of Huaiphlu community It is an interdisciplinary process. Integration by using the sound of the instrument from the sound synthesis as a medium, together with the singing in 3 languages as a storyteller as Music Interpreter, as well as the atmosphere in the meaning of the song. which the listener will receive a proper adsorbing on musical segments are clearly divided by music creator which critical assess from music expertise

### Recommendations

1. The musical creation like this title, should be learn universal act more each principle-method and other academics that would be understanding outstanding universal knowledge of infinities sustainable communities in cultural strengthen first.

2. Should be using a lively music instrument for really sound of musician skills which interpreting all natural hearing and learning to appreciate and easy to semantic through meaning of warming harmoniously aims, so we love each other and unite as one. build strength, love, protect, help each other. compilation received willingness

3. The lyrics verse poetries of 3 languages should be singing by natives announcer singer, voicing expert for a clearly accent which assess by expertise

4. The creative community song based on concept of warming harmoniously aims like this should be expanding to everywhere anyplace, because some of community resources became to permanent values account for learning together music admire for everyone and every communities too.

## References

- Sira Arsavaderros, (1979), **Thai-Loas Ethnic group along the river basin of central parts** Usagane,Bangkok.
- Department of Religious Affairs, (1986). **Temple Establishment of Wat Huaiphlu.** Bangkok.
- Nakhon Pathom Cultural Centre, (2008). **History of Nakhon Pathom**, online
- Anusarn Higher Education (2020). **1 sub-district, 1 university. Publication document of the Office of the Permanent Secretary for Higher Education, Science, Research, and Innovation.** Saha Printing and Pleasing Co., Ltd.: Bangkok.
- Australia ICOMOS. (1988). **Guideline to The Burra Charter Cultural Significances Values.** Australia.
- ICOMOS Charter of Thailand. (2015). **On the interpretation and presentation of cultural heritage sites.** ICOMOS Thai: Bangkok.
- Fine Arts Department. (2000). **Cultural System for Quality Management.** The Fine Arts Department Printing: Bangkok.
- Jacobs A. (1996). **Dictionary of Music.** Penguin Group: England.
- Joan D. (1991). **Themes work design.** Australia.
- Manus K. (2014). **Interpretation and assessment.** Documents for teaching interdisciplinary subjects. Faculty of Fine and Applied Arts Burapha University: Chonburi.
- Morache F. (2014). **Designing the consumption trends of people in the world 6 models.** Business Nation: Bangkok.
- Research and Development Institute. (2013). **Criteria for applying for academic positions in the field of art and design.** Silpakorn University Printing House Sanam Chan Campus: Nakhon Pathom.
- Thitinun Charoensloong. (2021). **“Himmaphan” Symphonic Poem for the Trombone Ensemble.** Chulalongkorn University: Bangkok.

## A CREATIVE WORK: PROGRAM MUSIC ON “PHAR SUMEN” SONG FOR TROMBONE QUARTET AND STRING COMBO

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### Abstract

Contemporary music was the combination of elements of society, culture, art, and music in the Western and Eastern styles or may be said that bringing Western and Eastern music to exchange the culture of playing in the form of melody or arrange Thai music in Western style. After that, the fusion of Thai and Western music became more prevalent which we call "Contemporary Thai Music".

Traibhumikatha was a literature that relates to beliefs and religion, most of which can be found in murals that are paintings about the reincarnation of *Phra Sumen* Mountain, Himmapan mountain, a pond of angels, humans, monsters, animals, etc. that is most impressive thing is the narrative about the *Phra Sumen* Mountain until causing an inspiration to compose.

Therefore, this research has A Creative Work: Program music on “*Phar Sumen*” Song for Trombone quartet and String combo have 4 movements, First movement “Utaraguru”, the main melody in a unique style and clear structure. Second movement “Bupaviteha” when the development of the first part It was an episode with a unique and clear structure. Third movement “Chomphu” and Fourth movement “Amonkoyan” is the last movement, the return of the main melody. This was a combination of contemporary music, and string combo. In each episode will give the audience a different experience, but it has the same one.

**Keywords:** Trombone, Program music, String combo, Phra Sumen

**Type of Creative work:** Music **Field:** Creative fine art

## Introduction

A contemporary music is the integration of social, cultural, artistic and music elements in the western and eastern styles. or may be said that bringing western and eastern music to exchange the culture of playing in the form of melody or arrange Thai music in western style After that, the fusion of Thai and Western music became more prevalent. which we now call "Contemporary Thai Music"

Thai literature has a long history of writing, since from the Sukhothai Kingdom. It is divided into oral and written literature. Most Thai literary writers will talk more about literature that has been recorded in writing because they can search for information, translate languages, find the origins and places of Thai literature, which in line with the Thai literature. An article on the Phra sumen creatures mentioned in Thai literature. (S. Plai noi, 1997)

Traibhumikatha literature is a literature related to beliefs and religions. Most of them can be seen on murals depicting metempsychosis, Phra Sumen Mountain, Himmapan forest, ponds, angels, humans, beasts, animals in literature, and others but what the researcher was most impressed with was the narrative about the different continents surrounding Phra Sumen, which each continent has different strengths that impressed the researcher, thus creating a song based on the description.

The composition of the song "Phra Sumen" is a song in the form of program music with a length of about 20-25 minutes, using the title of the song: A Creative work: Program music on "Phar Sumen" Song for trombone quartet and string combo divided into 4 movements.

First movement	"I Utaraguru"
Second movement	"II Bupaviteha"
Third movement	"III Chomphu"
Fourth movement	"IV Amonkoyan"

A trombone ensemble considering the range of trombone and tone color for cover all tastes and feeling, the researcher has chosen to use different types of trombones and there are approximately 9 members divided into

1. Trombone quartet 4 members
2. String combo 5 members

## Objective

1. To create a song for the trombone quartet and string combo in the song "Phra Sumen."
2. To perform a trombone quartet and string combo to the public.

## Literature Review

The trombone has been physically modernized and comfortable since the 13<sup>th</sup> century, and this type of instrument has grown in popularity accordingly. It can be noted that different types of music often have trombones as an integral part of the music, beginning with Claudio Monteverdi (Claudio Monteverdi, 1567-1643) composing the compositions for the trombone in the opera Orfeo. The composition of the trombone deck was first composed by Biagio Marini, a student of Monteverdi, in the composition "Canzona for four trombones (1626)". The trombone became more popular among composers. The trombone orchestra originated from the performance of church songs. Then, changed to a trombone band that no longer needs to be played to accompany other music this was because later composers started composing songs specifically for the trombone. After that, it has spread to other authors since then.

Thai literature has a long history of writing, since from the Sukhothai Kingdom. It is divided into oral and written literature. Most Thai literary writers will talk more about literature that has been recorded in writing because they can search for information, translate languages, find the origins and places of Thai literature, which are in line with the Thai literature. An article on the Phra sumen creature that has been mentioned in Thai literature notes. (S. Plai noi, 1997)

Tribhumikatha literature is a literature related to beliefs and religions. Most of them can be seen on murals depicting the cycle of swimming, death and birth, Phra sumen Mountain, Himmapan forest, ponds, angels, humans, beasts, animals in literature, and others, but what the researcher was most impressed with was the narrative about the different continents surrounding Phra Sumen Mountaun, which each continent has different strengths that impressed the researcher, thus creating a song based on the description.

A Combo band and String combo is a combination of bands with no more than 6 musicians, which combo is an abbreviated form of the word "Combination" meaning a combination or in other words referring to a trendy band. The most of

them consisted of no more than 6 musicians, a small band used for on-site performances with limited space musical instruments are mixed as appropriate. The main instruments are electric guitars and drums. The string combo has a distinctive character that is different from other types of bands. The string combo will have an electric guitar as the main instrument for playing. A secondary melody always intervenes. The melody takes on the chorus, improvised, and the ending melody, which the guitar performs various functions these are called guitar leads or guitar solos, and the remaining 1 guitar performs the chords of the song with various styles called guitar rhythm. The researcher wrote the song "Phra Sumen" in western and eastern styles, which used a trombone quartet to play the main melody and a string combo as the accompaniment. The song of Phra Sumen is divided into 4 movements as follows: First movement "I Utaraguru", Second movement "II Bupaviteha", Third movement "II Chomphu", Fourth movement "IV Amonkoyan".

### Conceptual Framework of Creative work

A study of knowledge in composing the song "Phra Sumen" for trombone quartet and string combo performance" published by online concert and creative research papers.

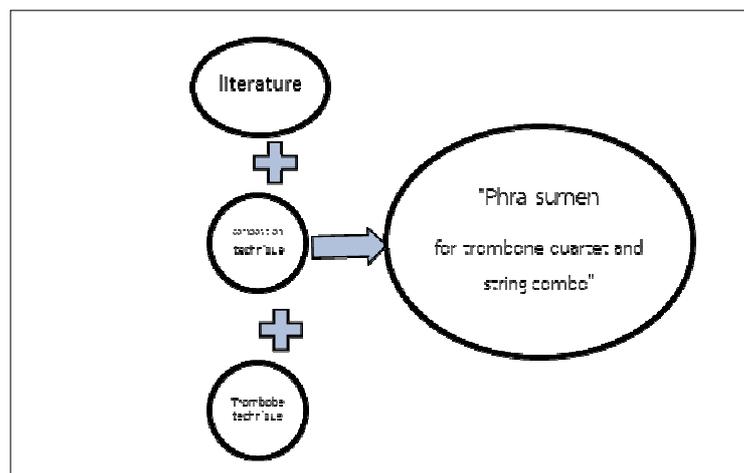


Figure 1. Conceptual framework for composing the song "Phra Sumen"

### Creative Methodology

1. Interview with experts about composition techniques and the melody of the song.

2. Study of Thai literature, tribhumikatha texts, transcripts and books about Phra Sumen mountain , including various continents, and interpret the meaning of articles in the author's style.

3. Apply the aspect of interpretation to consult with a composer.

4. Creative Music: Program music “Phra Sumen” for a trombone quartet and string combo.

5. Take the composer "Phra Sumeru" to consult with music composing specialists.

6. Online concert to the public

7. Conclusions

### **Creative work**

A creative work: Program music “Phra Sumen” is divided into 4 movements as follows: First movement “I Utaraguru”, Second movement “II Bupaviteha”, Third movement “II Chomphu”, Fourth movement “IV Amonkoyan”.

# I UTARAGURU

PHAR SUMEN FOR TROMBONE QUARTET AND STRING COMBO

THITINUN CHARDENSLOONG  
2022

LARGO ♩ = 80

TENOR TROMBONE

TENOR TROMBONE

TENOR TROMBONE

BASS TROMBONE

ELECTRIC GUITAR

PIANO

ELECTRIC BASS

DRUM SET

10 **A**

TEN.

TEN.

TEN.

B. TEN.

E. GTR. *Distort.*

PNO.

E. BASS

Dr. **A**

Figure 2. First movement: I Utaraguru

**II BUPAVITEHA**  
PAIR SUKSES FOR TROMBONE QUINSET AND STRING COMBO

TITIMUN CHARENSONG  
2022

ANDANTE  $\text{♩} = 75$  LONELY

TENOR TROMBONE  
TENOR TROMBONE  
TENOR TROMBONE  
BASS TROMBONE  
ELECTRIC GUITAR  
PIANO  
5-STRING ELECTRIC BASS  
DRUM SET  
TEN.  
TEN.  
TEN.  
B. TEN.  
E. Gtr.  
Pno.  
E. BASS  
Dr.

Figure 3. Second movement: II Bupaviteha

**III CHOMPU**  
PIRE SUKUM FOR TROMBONE QUARTET AND STEINBAY COMBO

TUTTHAN CHARSINELONGA  
2022

ALLEGRO  $\text{♩} = 100$  / MOLTO LEGATO

TENOR TROMBONE  
TENOR TROMBONE  
TENOR TROMBONE  
BASS TROMBONE  
ELECTRIC GUITAR  
PIANO  
ACOUSTIC BASS GUITAR  
DRUM SET

ALLEGRO  $\text{♩} = 100$  / MOLTO LEGATO

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12 3

TEN.  
TEN.  
TEN.  
B. TEN.  
E. GTR.  
PNO.  
BASS  
DR.

Figure 4. Third movement: III Chomphu

### IV AMONKOYAN

PHAR SUMEN FOR TROMBONE QUARTET AND STRING COMBO

THITINUN CHAROENSILONG  
2022

ALLEGRO  $\text{♩} = 125$

TENOR TROMBONE

TENOR TROMBONE

TENOR TROMBONE

BASS TROMBONE

ELECTRIC GUITAR

PIANO

4-STRING BASS GUITAR

DRUM SET

ALLEGRO  $\text{♩} = 125$

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6

3

TEN.

TEN.

TEN.

B. TEN.

E. GTR.

PNO.

BASS

DR.

DISTOR.

*f*

*ff*

*p*

Figure 5. IV Fourth movement: Amonkoyan

#### Form and Analysis of “Phar Sumen”

##### First movement “I Utaraguru”

The researcher has taken the text from the book that describes “Utaraguru that It is in the north of Phra Sumen Mountain, which has the golden element to the north of Phra Sumen Mountain giving the sky and oceans of the continental

Uttarakhand a golden color. Humans living on this continent has a face in a quadrilateral shape, keeps the 5 precepts forever, does not take possessions, children, wives, husbands as people who are about 1,000 years old. (Tribhumikatha, 2012).” This article the author interprets it as the beginning of the song and induces the listener to imagine natural lifestyle. The researcher using melodic sequence technique in the form of changing the sound into a pair of intervals fifth with Rubato to create an enjoyable experience for the listeners. A feel the coolness Mixed with excitement, suspense, and hot as the sun. The main melody starts from the G minor pentatonic scale, so the first passage will start with a string group, which will be played in the lowest sound of that instrument, because the low sound, when played 1 time sounds that make up 1 sound (Harmonic Series) is played to deliver the melody in the chord C major ninth.

**I UTARAGURU**  
 PHAR SUMEN FOR TROMBONE QUARTET AND STRING COMBO

THITINUN CHARDENGLONG  
 2022

LARGO ♩ = 80

The musical score is written for a Trombone Quartet and String Combo. It features six staves: Tenor Trombone, Bass Trombone, Electric Guitar, Piano, Electric Bass, and Drum Set. The key signature is G minor (two flats) and the time signature is 4/4. The tempo is marked 'LARGO' with a quarter note equal to 80 beats per minute. The score includes several annotations: a red box highlights the 'G minor pentatonic melody' in the Tenor Trombone part; another red box highlights the 'Harmonic series of slide trombone' in the Bass Trombone part; and a third red box highlights the 'Low Piece technique' in the Piano part. Dynamics such as *p*, *mp*, and *f* are indicated throughout the score. The Electric Bass part shows chords like  $Gm^9$ . The Drum Set part includes a 'Low Piece' technique annotation.

Figure 6. Melody of main key signature and Harmonic series of slide trombone.

### Second movement “Il Bupaviteha”

The researcher was inspired to compose the song in the second movement from the article described as “When the sun rises in the chomputaveep where we live It corresponds to the time of noon in the continent of the continent of

uttarakuru. its midnight in Amornkoyantaveep, when the sun rises in the continent It corresponds to the time of noon in the uttarakurutaveep, as the western time in the Amornkoyantaveep.” Demonstrates coherence in each continent. Just like the time when the other side is bright, there is always the other side was dark. Therefore, interpreted the songs in this second process in a compositional structure and were unique to the Western string combo. The composer wants to present the development of the melody from the first main melody so that there is a relationship between the first and the second movement using the loneliness to convey the dark night.

Therefore, in this section, the author uses a free form to convey the simplicity and tranquility of day and night. In which the composer has developed the main melody in the first verse for the smoothness of the melody between the first and the second verse. The key signature was moved to the relative key Bb minor, to establish the relationship between the first and second steps of the song. This part begins with a guitar lead using the Glissando technique to show the important techniques in this part on a chord major ninth with a trombone quartet played as an accompaniment.

**II SUPAVITEHA**  
PIAN SUKUMEN FOR TROMBONE QUARTET AND STRING COMBO

TITINILW CHAROENSILONG  
2022

ANDANTE  $\text{♩} = 75$  LONELY

The musical score is for a piece titled "II SUPAVITEHA" by Titinilw Charoensilong, 2022. It is for a piano ensemble consisting of four Trombone parts (Tenor 1, Tenor 2, Tenor 3, Bass), Electric Guitar, Piano, 5-String Electric Bass, and Drum Set. The tempo is Andante (75 bpm) and the mood is Lonely. The key signature is Bb minor (three flats) and the time signature is 4/4. The score is divided into two systems. The first system shows the Trombone parts with rests, the Electric Guitar part with a "Guitar Effect" box and a "Solo Distort" section, and the Piano part with an "Accompaniment" box. The second system shows the 5-String Electric Bass part with a "MUTE" box and a "Chord Bb9" box, and the Drum Set part with a "MUTE" box and a "Solo Distort" section. The score includes various musical notations such as rests, notes, and dynamic markings.

Figure 7. Glissando technique, chord major ninth and accompaniment.

### Third movement “III Chomphu”

The Chomphu that brings the main melody of the first movement to develop a specific form from the text in the Tribhumkatha book means that “The lifespan of chomputaveep can be long or short, because sometimes human beings sometimes have morals, sometimes they don't would make merit and practice dharma reverence the elders, parents, and monks as for those who do not hibernate, do not merit, do not respect elders, parents, ascetics, and brahmins, preceptors and teachers, their lifespan is shortened because of this. The age of man in this Indian subcontinent is therefore indeterminate” (Tribhumikapha, 2012), which inspired the composing of the songs of this process. This section moves the key signature back to the key of F major, which is an essential feature of the reverse triad. Finally, it ends with the tail of the song. The researcher chose contemporary writing techniques which is a combination of a trombone quartet with a string combo Therefore, in this section, special effects for trombones are performed, such as pitch bending, Multiphonic, Slap Tonguing, Non-Standard Vibrato and Non-Standard Glissando, which will give listeners a new taste.

The image shows a musical score for the third movement, "III CHOMPU". The score is written for a Trombone Quartet (Tenor Trombone, Bass Trombone), Electric Guitar, Piano, 4-String Bass Guitar, and Drum Set. The tempo is marked "ALLEGRO ♩ = 100 / MOLTO LEGATO". The key signature is F major (one flat). The score includes several annotations for extended techniques: "Slap tonguing" on the Tenor Trombone, "Flutter Tonguing" on the Bass Trombone, and "Multiphonic and Glissando" on the Bass Trombone. The score also includes dynamic markings like *mf* and *mp*, and a section marker "A". The copyright notice at the bottom reads "Copyright © 2022".

Figure 8. Extended Technique for trombone

### Forth movement “Amonkoyan”

The last movement, which is the return of the main melody of the first movement, as well as the melody from other movement, as if it were the conclusion of all continents, therefore inspired the composition of the music of this process. This section switches the key back to the G Minor key again to get the aura of the first process it then moves to the common cipher to signify the return to the tune of the second and third steps. The researcher chose to use the rounded ternary form in which each section of the song is a combination of a solo instrument in a percussion group and a group of trombone quartets unstable cadence change and the use of a of quartal chords Including special effects mix for trombone, which will give listeners a new taste.

**IV AMONKOYAN**  
PHAR SUMEN FOR TROMBONE QUARTET AND STRING COMBO

THITINUN CHARDENSLOONG  
2022

ALLEGRO  $\text{♩} = 125$

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Figure 9. Imitation composition technique

### Conclusion

In this research, A Creative work: Program music on “Phar Sumen” Song for Trombone quartet and String combo. Phar Sumen used rounded ternary form, divide 4 movements are divided into first movement “Uttarakuru” which creates the main melody from the article that the researcher is impressed with using in a simple two-part form that has a unique and clear structure. Second movement “Bupaviteha”

bringing the main melody of the first movement to develop melodies and arrangements. The researcher chooses free form and a relative key signature to create a continuous feeling in the listener. Third movement “Chomphu” movement the key signature back to the F major key, a feature that importance of the rounded ternary form. Finally, The researcher choose contemporary techniques, which is a combination of a trombone quartet with a string combo Therefore, in this section is a special technique for trombone. Forth movement “Amonkoyan” return of the main melody. or when reversing the return of the main melody with contemporary music practice with string combo which in each episode will give the listener a different taste but with the same unity.

### Discussions

A Creative work: Program music “Phra Sumeru” for trombone quartet and string combo was inspired by the Thai literature “Phra Sumen”. Transcripts of the Tribhum and the World Phlu Luang researcher has interpreted from the study of music literature and painting, which allows the creation of oval works that can clearly express the emotions and feelings that result from the interpretations of them.

A creative work researcher studied the characteristics of each continent in each continent from the Triplum, thai literature paraphrased wall painting articles and research related to the area surrounding Phra Sumen mount to obtain information that is unique to the continents in terms of physical characteristics and general characteristics. After that, it was broadcast in the form of creative music. It can be divided into 4 movement as follows: First movement “Uttarakuru”, second movement “Bupaviteha”, Third movement “Chomphu”, Fourth movement “Amonkoyan” for a trombone quartet and string combo, when the guidelines and parts are clearly divided the researcher therefore began to compose songs and periodically sought advice from experts.

Comments from the researcher

A Creative work: Program music “Phra Sumeru” for trombone quartet and string combo it is considered the researcher's third song for a small trombone to be released online. The researchers lacked expertise in composing songs for smaller trombones. That is quite complicated in terms of using the color of the trombone

instrument to create a novelty of the tone color, sounded and taste of the listener. So, it took a long time to write this song.

### Suggestion

1. Should apply the concepts or learning theories of academics in other fields of education to adapt to the special technique exercises To create and develop a pattern of exercises to be structured and interesting Make the cultivators learn better.

2. This special technique exercise for trombone should be adapted. to be up to date by creating self-learning media in the form of E-Learning or E-Book, etc.

3. The composition should be developed to be more diverse and interesting. for those interested in other levels able to learn more.

### References

- Adam, J. M. (2008). **“Timbral Diversity: An Annotated Bibliography of Selected Solo Works for The Tenor Trombone Containing Extended Technique.”** Doctor of Arts, University of Northern Colorado.
- Andrew S., Karen F., Morty M. (2009). **Music Theory.** USA. Alfred Publishing Co.
- Bara Wharram. (1974). **Theory for Beginners.** USA: The Frederick Heris Music Co, Limited.
- Cason, Austin Duke. (2001). **A performer's guide to theatrical elements in selected trombone literature.** United states: Louisiana State University.
- Davidson, M. M. (2005). **“An Annotated Database of 102 Selected Published Works for Trombone Requiring Multiphonics.”** Doctor of Musical Arts in Trombone Performance, University of Cincinnati.
- Jean B. (2013). **“Complete Method for Trombone and Euphonium”**
- Natcha Phancharoen. (2017). **Sangkeetlak and analysis.** 6<sup>th</sup> printing, Bangkok: Thana Press Company Limited.
- Office of Literature and History. (2012). **Triphum modernize Edition.** (M.O.P.)
- Sombut P. (1997). **Himmapan.** Bangkok: Tonor Press.
- Prayoon Uluchada. (1995). **Thewhalok Plu Luang.** 2<sup>nd</sup> printing. Bangkok: Ancient City Press.

## A CREATIVE WORK: SOR LONG NAN SONG FOR WIND QUITET

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### Abstract

This musical creation is to composing a song "Sor Long Nan" to play with a Wind Quartet. The song can be divided into 2 parts, which are the Long Nan melody and Lub Lang melody. Using harmonization and interpolation techniques from western music style but have theme towards the characteristics of Thai music style.

In terms of create to be an practice, Song "Sor Long Nan" The experts gave their opinions on the consistency between the questions and the objectives (IOC=1). Show that the practice of "Sor Long Nan" that the researcher created is consistent to use in practice of the defined study.

**Keywords:** Sor Long Nan song, Wind Quartet, Four-Part harmony, IOC

### Introduction

Around the end of the decade 2520 B.E. (1977 A.D.), there was a popular "Luk Thung (Thai local genre)" song which arises from bring the melody of "Sor Long Nan", but adjusted to be concise and put new content and Hits phrases about "Num Lampang tam mea ( The Lampang man searching for his wife)" by singer "Sodsai Rungphothong". Which at that time was depressed period for Luk thung genre, Sodsai Rungphotong went to the North and join the Boonsri Ratnang band and tours in the 5 Northern provinces, That was the source of this song. By currently, this song is still popular in the music industry, as well as composers of Luk thung songwriters still always put the modern lyrics into the melody of Sor Long Nan song.

Sor song is another type of Thai retort song of northern region, such as Lam Tad song of the Central, Mo Lam song of the Isan (North-Western) and the song Bog song of the southern. Although the modern music that is prevalent today, was made the Sor song to stagnant from music industry, but it's not lost or dead. With the religious activities and beliefs of the Lanna people such as a Dapoi (Novice ordain

ceremony) ceremony or Monk ordain, feeding ghost festivities, temple festival, etc., still use Sor music for these events.

Currently, the Sor music or fiddle musicians in different provinces still exist, but it is considered that the center of this music can be classified into 2 groups such as the Chiang Mai fiddle group and the Nan fiddle group. The Chiang Mai fiddle group is a wind instrument which uses "Pi-jum (Local bamboo flute)" to play along with Sor they call Sor-Pi. Some band use 3 bamboo sticks or 2 bamboo sticks. The Chiang Mai fiddle group is widely spread in surrounding provinces such as Lamphun, Lampang, Chiang Rai, and Phayao, etc. For the Nan fiddle group, will use stringed instrument such as "Sa-lor (Local bamboo flute)" and "Pin (Local harp)" playing together to support the fiddle. Nan fiddle group is popularly spread in Nan, Phrae, Uttaradit and some districts of nearby Nan provinces such as Pong District, Ngao District (Lampang) and Laplae District (Uttaradit). The two types of fiddle bands do not have any percussion to directing the rhythm in any way.

There are many famous personnel fiddle groups of Nan province, such as Kru Chailanka Kruesen, (National Artist of Performing B.E. 2530 (1987 A.D.)), Khru Kham Phai Nupin, (National Artist in Art of Performing B.E. 2538 (1995 A.D.)) and has many famous fiddle faculties such as Khru Arunsilp Donmun and Khru Chokchai Meksaen, etc.

There are 2 melodies of Nan fiddle group, namely "Long Nan" and "Lub-lang" melodies. By the two melodies have a similar structure. The Long Nan is more commonly used in performances. Because the melody that gives the bright and cheerful theme. But the Lub-Lang melody have too gloomy theme. Most of them use to play at the end of the show, to bid farewell to guest or listener, like the Sunset. Present, B.E. 2564 (2021 A.D.), song Sor Long Nan still being played in many genres and mix with western instruments. And rearrange into contemporary music by bringing together elements of society, culture, art and music between the West and the East. Or it may be said that Western and Eastern music are exchange the culture of melody, or arrange Thai music in western style which we now call "Contemporary Thai music", which has a new interpretation of Sor Long Nan song to play according to each artist's genre.

The researcher himself has a domicile in Lampang Province, if talking about Sor Long Nan song, it is very popular that the researcher has heard since childhood. Even both the original Sor Long Nan song or already been converted such as "Num lampang tam mea" song (The Lampang man searching for his wife) and when

Lampang people who displaced to work in foreign province are often been kidding to say "Came to searching for a wife?" And when have invites to sing in party, the Lampang people often get a call to sing "Num Lampang tam mea" as well. Causing a strong connection with the melody of Sor Long Nan song. Therefore, the researcher has an idea to recompose this song in a different way, thus giving a deep impression of a song that is almost a representative for Lampang people and be grateful to the teachers who taught me. My teachers were not Thai music teachers, but is a teacher of international instruments of the saxophone type. Therefore, the researcher had an idea to arrange the melody, harmonization and rhythm of the new Sor Long Nan Song for the Wind Quartet band.

### Objectives

1. To composing "Sor long nan" song for a Wind Quartet band performance.
2. To use the Notation of "Sor long nan" song as an exercise for teaching.

### Literature Review

#### The tone used to write Four-Part harmony.

To composing or instrumental design of Sor Long Nan song, in the Saxophone quartet style has concept as following,

#### 1<sup>st</sup> Alto Saxophone

Perform the main melody. Sometimes perform the harmony notes when the other saxophone plays main melody. Sometimes perform the counter melody (Repeat melody).

#### 2<sup>nd</sup> Alto Saxophone

Perform the harmony notes. Sometime perform the main melody when the other saxophone plays the harmony notes, to change the song theme and create new tone.

#### 3<sup>rd</sup> Tenor Saxophone

Perform the third harmony notes lower than the second alto. Tenor also can perform main melody in some verse as well.

#### 4<sup>th</sup> Baritone Saxophone

Perform the lowest harmony notes. And determined that Baritone to perform counter melody inn some verse by String bass style of popular music that emphasizes the chord root, in especially the 1st and 3rd beats of the bar (measure)

Perform evaluation of song Sor Long Nan guideline.

The Practice quality evaluation form is a suggestion about the composing and finding the consistency of practice, for student of Music Faculty, Bangkok Thonburi University with 3 experts. To inspect the deficiencies in objective, activities of evaluation, then bring to improve according to the recommendations by finding the IOC

By score +1 = Ensure that the objective/content exercise

Score 0 = Not sure if the purpose/content exercise

Score -1 = Ensure the exercise does not measure the purpose/content.

In this research to be effective according to the set criteria is 1.

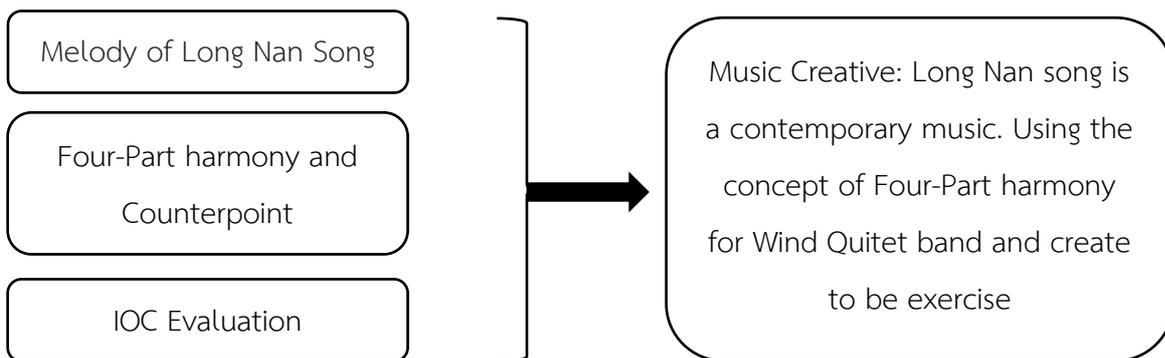
**Conceptual Framework of Creative work**

Figure 1 Research conceptual framework

**Creative Methodology / Knowledge integration**

To make the melody of Sor long Nan and Sor Lub-Lang has spread to a wider audience, the researcher bring the melody of the two fiddles performing by Wind Quietet with the concept as following:

1. Suitability and Availability of musical instruments. The researcher has designed and arrangement the harmony of quartet saxophone comes out as A(S)+A+T+B, meaning that the entire band can perform both A+A+T+B or S+A+T+B format. This is suitable for the instruments or the educational institutions that often lacks a player or lack of a Soprano Saxophone.

2. Classification of functions of musical instruments.

2.1 The 1<sup>st</sup> Alto Saxophone and 2<sup>nd</sup> Alto Saxophone take turns performing the melody by imitate retort between Male and Female singing verse. If

1<sup>st</sup> Alto performs the melody, the 2<sup>nd</sup> Alto will perform the counter melody (imitate to Sa-lor) vice versa, If 2<sup>nd</sup> Alto performs the melody, the 1<sup>st</sup> Alto will perform the counter melody.

2.2 The Tenor Saxophone perform a melody imitates to Pin walks in a Swing rhythm repeat a similar throughout the song.

2.3 The Baritone Saxophone perform a low-pitched melody or to be bass of modern music to create excitement fun way like bass guitar. Sometimes there may be a melody repeating, to emphasize the melody more clearly and feel more intense.

3. Chord Mostly will use the 5th or 4th perfect. The 3rd Major and Minor will quite not use because, if there is a lot or often the 3rd major triad chords, the mood of the folk music will lacking. It makes music too westernized, especially for strong beat or duple meter.

4. Percussion for Woodwind Ouitet. Normally, the performing of Chiang Mai or Nan fiddle style do not include percussion such as cymbals or drums. So the researcher has support this reason as following.

- In the old days there was no microphone and amplifier. So the sound of cymbals and drums will drown out the vocals, especially the story and content that Chang Sor (The vocalist ) brings to the audience. Which the education was not yet thorough in the past, the stories are therefore teachings, morals, way of life, activities in rituals, beliefs, as well as learning in agriculture or even sex education will drown by the noise of the percussions.

- The joyful sounds of cymbals and drums distract attention to the beauty of language, the melodiousness of the Chang Sor's voice.

- In the Kwan Nak ceremony (Ordination), Boonban (making merit for the new house), Poi Khao Sang (making merit for the deceased) such a merit event would require a peaceful atmosphere, not tumultuous. Therefore, having a soft music accompaniment would make the merit work full of beautiful sound, can create faith for people in the event. So we wasn't have a cymbals or drums in the fiddle band both Chiang Mai and Nan style.

For that reason, the composing in this creative research did not include the percussion. This is to honor the sound of the 4 saxophones harmony together beautifully.

## Creative work / Performance

Sor Long Nan - Lub Lang presents a full score note layout, and in order to distinguish the harmonic distances, the Sal key is used in the baritone tone. as Figure 2.

ส่องนาน - ลับแลง  
Saxophone Quartet

The musical score is for a Saxophone Quartet in the key of Sal (B-flat major) and 2/4 time. It consists of four staves: Alto Saxophone 1st, Alto Saxophone 2nd, Tenor Saxophone, and Baritone Saxophone. The score is divided into systems with measure numbers 6, 11, 16, 21, and 25. The first system (measures 1-5) features a melodic line in the Alto Saxophone 1st part starting with a 'swing' tempo marking and a dynamic of *f*. The second system (measures 6-10) includes a first ending bracket (①) and a dynamic of *mp*. The third system (measures 11-15) continues with a dynamic of *mp*. The fourth system (measures 16-20) also features a dynamic of *mp*. The fifth system (measures 21-25) concludes the piece with a dynamic of *mp*.

29 ② 3

33

38

42

46

50

6  
70

Musical score system 1, measures 70-74. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. The system ends with a double bar line.

75

④

Musical score system 2, measures 75-79. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. A circled number 4 is placed above the first measure. The system ends with a double bar line.

80

Musical score system 3, measures 80-84. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. The system ends with a double bar line.

85

③

5

Musical score system 4, measures 85-89. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. A circled number 3 is placed above the first measure. The system ends with a double bar line.

90

Musical score system 5, measures 90-94. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. The system ends with a double bar line.

95

Musical score system 6, measures 95-99. It features a vocal line in the upper staff and piano accompaniment in the lower two staves. The key signature has three flats and the time signature is 3/8. The system ends with a double bar line.



Figure 2 Sor Long Nan - Lub Lang Full Score

### Conclusion

The objectives of this research are:

1. Got the “Sor long nan” song for a Wind Quintet band performance.
2. Get an exercise from the song “Sor long nan” that has been evaluated by 3 experts.

### Discussions

Discussion for the results of created teaching exercises.

As the researcher has already applied the song “Sor Long Nan” submits to the 3 evaluator (experts), the researcher then brought it to discuss the results as follows:

First time; all evaluators have consistent opinion that the exercise was a clear practice; the evaluation score between 0.6 (can use but should improve). On the content side, because the baritone notes are in the F clef, this makes the notes shown on the stave (staff) will difficult to compare with other pitch notes.

Second time; all evaluators have consistent opinion that the exercises are clear training, the evaluation score 1.

### Song analysis

The melodies of Loong Nan and Lap-Lang have the same structure; same measure (bar) and similar style but the melody or the movement of different melodies by Long Nan in major scale but Lub-lang in minor scale. This can be comparing as Figure 3 and Figure 4.

**ตัวอย่าง ทำนองซอล็องน่าน**

**Figure 3** Sample song Sor Long Nan



Figure 4 Sample song Sor Lub Lang

### Suggestions

1. For academically and culturally, there should be other Thai songs to re-arrangement more.
2. For public, this music should be released as live performance.

### References

- Pancharoen, N. (2010). **Writing 4 tones harmony** (2<sup>nd</sup> publishing). Bangkok: Ket Karat Publishing House.
- Pancharoen, N. (2010). **Music theory** (9<sup>th</sup> publishing). Bangkok: Ket Karat Publishing House.
- Apichanthong, P. (n.d.). **Sheet music for Lanna folk music**. Lampang: n.p.
- Srikran, M. (1994). **Jazz composition**. Bangkok: Siamkorkan Music School.
- Pongcharoen, S. (1992). **Lanna folk music**. Chiang Mai: n.p.
- Shuarun, E. (2012). **Arrangement of Thai folk songs for a small marching band, middle class**. Bangkok: Bachelor degree of Arts Thesis. Mahidol University.

# A STUDY OF TEACHING MUSIC THEORY COURSE IN ANHUI UNIVERSITY OF FINANCE AND ECONOMICS, ANHUI PROVINCE, CHINA

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## **Abstract**

University music theory courses are highly practical courses, and teachers can get twice the result with half the effort by teaching theoretical knowledge while designing corresponding exercises and training in conjunction with the content of the textbook. This study is based on a sample of music theory courses at the School of Arts of Anhui University of Finance and Economics in Anhui Province, China. Through interviews with the school's teaching management officials, the Dean of the School of Arts and some teacher representatives, the study examines the management mode and teaching situation of music theory courses at the School of Arts of Anhui University of Finance and Economics and concludes with personal recommendations.

**Keywords:** University Music, Theory Course Teaching, Current Situation and Suggestions

## **Introduction**

Anhui University of Finance and Economics was founded in Hefei in May 1959 as Anhui College of Finance and Trade, and was relocated to Bengbu, a city in the centre of the Hoagie River Basin, known as the "Pearl City", in 1961, with the campus located at Jiao tong Road. 1983 saw the relocation of the main campus to Longhop West Campus. In February 2000, the State Council decided that Anhui University of Finance and Trade would be jointly built by the central government and the local government, and that the school would be managed by the Anhui Provincial Government.

The university is a multidisciplinary financial university with a focus on economics, management and law, as well as eight disciplines of literature, science, engineering, history and art, and is one of the first universities in China with the right to confer bachelor's degrees and the third batch of universities with the right to

confer master's degrees. In 2012, it was awarded the National Mid-Western University Basic Capacity Building Project, and in 2014, it was selected as one of the high-level university construction projects with local characteristics in Anhui Province.

The university now has the School of Economics, the School of Finance, the School of International Business and Economics, the School of Business Administration, the School of Management Science and Engineering, the School of Accounting, the School of Finance and Public Administration, the School of Law, the School of Statistics and Applied Mathematics, the School of Arts, the School of Liberal Arts, the School of Marxism, and the Department of Physical Education. There are 57 undergraduate majors, 2 second bachelor's degree majors, 9 first-level master's degree authorization points, 36 second-level master's degree authorization points, 14 professional master's degree authorization points, 20 national-level first-class undergraduate major construction points, 11 provincial-level first-class undergraduate major construction points, 5 national-level first-class undergraduate courses, 5 national-level specialty majors, 14 provincial-level specialty majors, 1 national-level comprehensive reform pilot program, 20 provincial-level comprehensive reform pilot programs, 1 national-level practical education base for school-enterprise cooperation, 33 provincial-level teaching teams, 51 provincial-level excellence training programs, 2 provincial-level experimental zones for innovation in talent training mode, 2 provincial-level key laboratories, 51 model courses in Civics and Politics, 68 provincial-level high-quality courses, 57 provincial-level offline, online, online and social education programs, and 5 national-level undergraduate programs. online, online, offline, hybrid, virtual simulation and social practice courses.

The university has given full play to its academic heritage and advantages, condensed disciplinary features and directions, set up disciplinary special zones, and innovated disciplinary construction platforms, forming a cluster of economic and management disciplines with multiple disciplines, reasonable structure, mutual support, and obvious advantages and characteristics. There are eight provincial key disciplines, one provincial first-class discipline and three provincial peak disciplines. Applied economics has been selected as a provincial key discipline, a domestic first-class discipline and a peak discipline of Class II in Anhui Province. In the fourth round of discipline evaluation, three disciplines, namely applied economics, business administration and statistics, were awarded B- grades.

Anhui University of Finance and Economics does not have an undergraduate major in musicology, only a postgraduate major. Therefore, in the education of art

theory courses for undergraduates, it has explored a teaching model that combines its own actual situation --- art club for music course education for all undergraduates. This is the first model of teaching music theory courses to all undergraduates in the form of art clubs in Anhui Province, China. It points out a new direction for the popularizations of music education.

The Art Club takes the form of one main section and many branches, such as Music Appreciation Club, Vocal Club, Choral Club, etc. Like other universities in China, Anhui University of Finance and Economics follows the requirements of the Chinese Ministry of Education and adopts a credit system for undergraduates, allowing students to earn credits upon graduation. Music is part of 10% of the total credits and to effectively address the selection of this module, classes are taken in the form of joining clubs and molecular societies to complete the credit requirements.

### **Objectives**

1. To study the teaching management of music theory courses in Anhui University of Finance and Economics.
2. To study the effect of the course under the advanced teaching management of music theory course in Anhui University of Finance and Economics, and to summarize.

### **Literature Review**

1. The current situation of music education in China
2. Teaching methods for music courses
3. The Chinese Ministry of Education's requirements for university music curricula.
4. The significance of music theory lessons in music teaching
5. The relationship between clubs and music teaching

### **Conceptual Framework**

Through the teaching of music theory classes to different majors and years at Anhui University of Finance and Economics, undergraduate students under the Art Club, they acquire music-related knowledge.

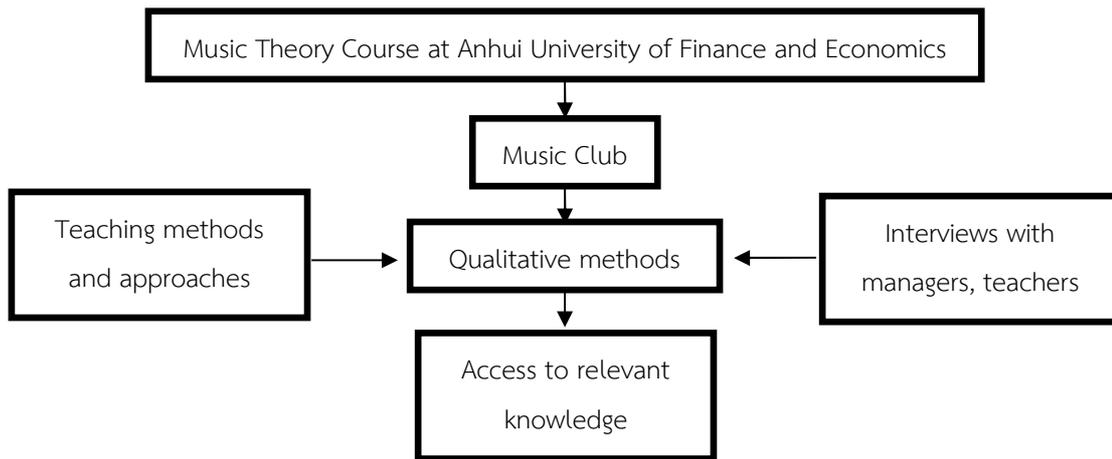


Figure 1 Conceptual Framework

## Research Methodology

### 1. Introduction

This chapter presents the purpose of the study under the following headings; type of study, conceptual framework; scope of the study, research tools, workflow, and data analysis.

### 2. Type of Research

Theory courses such as Basic Music Theory and Harmonics and Music Appreciation are very practical courses. Teachers can achieve twice the result with half the effort by teaching the theory and designing exercises that incorporate the content of the material.

### 3. Scope of research

3.1 What exactly is the advancement of the use of the music club format at Anhui University of Finance and Economics for the development of music theory classes?

3.2 What has been the effect of the new teaching model on the students involved and the teachers involved in teaching, including the leadership?

### 4. Research tools

4.1 Interviewing Form

4.2 Observation Form

### 5. Processes of working

This is done through field research, access to individual schools' syllabuses and student training documents, combined with actual lectures and visits, internet access to materials, and review of academic papers by relevant academics.

## 6. Research method

This research is a Qualitative methods

6.1 Literature reference research method

6.2 Information collection method

## 7. Data analysis

Descriptive analysis :

7.1 Reference to domestic and international literature, combing, analyzing and summarizing relevant subject contents and newspaper materials in music literature through the Internet and thesis databases.

7.2 To collect the programmed and basic process of music club implementation by interviewing music teachers and some of the students who participated in the music club and listening to their lessons.

## Results

1. The title of the thesis I am writing is A Study of Teaching Music Theory Course in Anhui University of Finance and Economics, Anhui Province , China

The location of the study is Anhui University of Finance and Economics in Anhui Province, China. A qualitative research method was used. The purpose of the research is twofold.

1.1 To study the teaching management of music theory courses in Anhui University of Finance and Economics.

1.2 To study the effect of the course under the advanced teaching management of music theory course in Anhui University of Finance and Economics, and to summarize.

The Anhui University of Finance and Economics, where I studied, is located in Bengbu, Anhui Province, China, on the shores of Longs Lake with beautiful scenery. Known as the City of Pearls, Bengbu has a rich cultural heritage and has produced many musical stars.

1) Anhui University of Finance and Economics was founded in May 1959. It is a multidisciplinary university of finance and economics, management and law, spanning seven disciplines of literature, science, engineering and art, and is one of the first universities with the right to confer bachelor's degree and the third with the right to confer master's degree in China. In 2012, it was awarded the National Basic Capacity Building Project for Universities in Mid-West China, and in 2014, it was

selected as a high-level university construction project with local characteristics in Anhui Province. The university now has the School of Economics, the School of Finance, the School of International Economics and Trade, the School of Business Administration, the School of Management Science and Engineering, the School of Accounting, the School of Finance and Public Administration, the School of Law, the School of Statistics and Applied Mathematics, the School of Arts, the School of Liberal Arts, the School of Marxism and the Department of Physical Education. There are 57 undergraduate majors, 2 second bachelor's degree majors, 9 first-level master's degree authorization points, 36 second-level master's degree authorization points, 14 professional master's degree authorization points, 20 national-level first-class undergraduate major construction points, 11 provincial-level first-class undergraduate major construction points, 1 national-level model course on Civic Science, 5 national-level first-class undergraduate courses, 5 national-level special majors, 14 provincial-level special majors, 1 national-level special majors and 1 provincial-level special majors. 14 provincial specialties, 1 national pilot program for comprehensive reform, 20 provincial pilot programs for comprehensive reform, 1 national school-enterprise cooperative practice education base, 1 national teaching team for curriculum thinking and politics, 33 provincial teaching teams, 51 provincial programs for excellence in talent training, 2 provincial experimental zones for innovation in talent training mode, 2 provincial key laboratories, 51 model courses for curriculum thinking and politics, 68 provincial quality courses, 51 provincial quality courses, and 51 provincial quality courses. The university has 51 model courses in Civic Science, 68 provincial-level boutique courses, 57 provincial-level offline, online, online/offline hybrid, virtual simulation and social practice courses. The university has 19,977 undergraduates, 3,285 master's degree students and 8,869 students in various types of higher education continuing education. The university has 1534 teaching staff, 589 teachers with senior titles, 27 doctoral supervisors and a master's doctorate rate of nearly 90%. The school covers a total area of 891,329.56 square meters, including 66,1005.79 square meters in the Longhu East Campus and 230,323.77 square meters in the Longhu West Campus. The building area of the university is 744,864.92 square meters, and the total value of teaching and research instruments and equipment is 241.3 million yuan. The library has a paperback collection of 2,231,700 volumes and an electronic collection of 120 terabytes.

2) The music courses at Anhui University of Finance and Economics are divided into two main categories. Practical courses: voice, piano, violin lessons, etc. Music theory courses: music appreciation, introduction to art, European music history, etc. This article mainly introduces the music theory courses offered in the university.

3) The school currently has 1534 staff on duty, of whom a total of six are engaged in music. There is one professor and three associate professors. Each of them teaches 4 times a week.

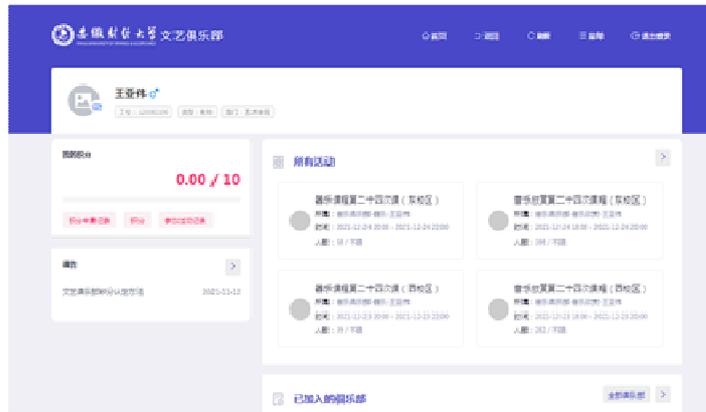


Figure 2 Music Class Schedule

This chart is meant to show the schedule of music theory classes in the Music Club of Anhui University of Finance and Economics for one semester. There are 4 classes a week, Tuesday's go from 6pm-10pm. Wednesday's class is from 2-6pm. The name of the course is Music Appreciation.

课程名称	课期一	课期二	课期三	课期四	课期五
第一类	课期一(19:00-20:00)	课期二(19:00-20:00)	课期三(19:00-20:00)	课期四(19:00-20:00)	课期五(19:00-20:00)
第二类	课期一(14:00-15:00)	课期二(14:00-15:00)	课期三(14:00-15:00)	课期四(14:00-15:00)	课期五(14:00-15:00)
第三类	课期一(18:00-19:00)	课期二(18:00-19:00)	课期三(18:00-19:00)	课期四(18:00-19:00)	课期五(18:00-19:00)
第四类	课期一(10:00-11:00)	课期二(10:00-11:00)	课期三(10:00-11:00)	课期四(10:00-11:00)	课期五(10:00-11:00)

Figure 3 Music Class Schedule

## 2. Results of the interviews

### 2.1 Zhao YiKun

Classes are held 8 times a week, and I use a 40-person class system in the Music Club, with 40 students in a class, divided into 2 classes. The club format attracts more students who are interested in learning music theory. Students who have a good foundation are more receptive to the lessons and get better grades, so they naturally enjoy their music theory lessons more. Students with a poor foundation will not do so well. I hope that the school can organise exchanges with teachers of the same course from other schools, so that they can share their experiences and insights in their lessons, so that the music theory lessons can be better taught and more students can enjoy these lessons. This will have a positive effect on the overall learning level of the students and on the quality of education.

### 2.2 Qian Jie

Classes are held 4 times a week and my music theory teaching is also carried out in the music club. I use a class of 15 students, divided into 4 classes in total. The lessons are taught in a PPT style with videos of the music being played. The students have different feelings, some like it and some don't, and I am trying to learn how to use the music club method to change the teaching methods to better teach music theory lessons to the students. Many students find music theory lessons boring and play with their mobile phones more often than not.

### 2.3 Wei GuoBin

As Dean of the School of Arts, I have been committed to pushing for changes in the teaching model, especially in music theory classes. This class is seen by students as very boring and by teachers as the most difficult class to teach. In order to better address such problems, we have implemented the establishment of a music club. A special classroom was set up for students to study. Secondly, we also actively strengthen the team of teachers of music theory classes from outside schools to share the advanced teaching methods with our teachers.

### 2.4 Jing TingRu

As the Director of Academic Affairs who manages teaching in the university, we have always supported and encouraged the reform of music theory courses in the School of Music. Anhui University of Finance and Economics is a university with a history and a sense of responsibility, always making discipline building its first priority and raising the overall quality of teaching to a higher level. 21st century science is

developing rapidly and there are many innovative mechanisms of all kinds. It is also a challenge for our teachers to face music theory classes in the traditional sense. We have optimised our teaching staff by recruiting young doctors to our faculty, who have absorbed more advanced knowledge and more scientific teaching methods, including the most advanced teaching concepts. In order to improve the teaching model, we have set up a music club and put music theory classes into the club, which is more innovative. Special classrooms have been set up and the use of the internet has been used to increase the software for music theory classes and improve the quality of teaching. Regular teacher interactions with advanced universities and professional organisations are carried out, relevant to learning new and advanced methods. Invite renowned experts and scholars to train teachers to liven up the classroom atmosphere and improve teaching effectiveness.

### **Discussions**

Music theory is the foundation of students' understanding of the history of music and their knowledge of playing, singing and musical instruments. In today's university music education practice, many students do not have a firm grasp of music theory and may even neglect it, focusing more time and energy on music skills training, resulting in students often encountering bottlenecks and difficulties in their music studies, which, coupled with untimely guidance and correction by teachers, can affect students' learning efficiency and outcomes. In fact, the development of music theory and practical skills are mutually reinforcing, and without a good foundation in theory, the effectiveness of practical training will be greatly reduced, resulting in students' music learning failing to reach their desired goals. In this regard, schools must make the teaching of music theory courses a core component of music education, increase the guidance of theory learning for students, encourage students to use music theory to guide practice, and verify theory in practice, in order to improve students' professional ability and musicianship.

Theory plays an important role in the teaching of music and has a significant impact on many other practical lessons. For example, music theory and harmony courses are the foundation of all music courses; courses such as History of Western and Chinese Music, Aesthetics of Music and Introduction to Art play an important role in all practical music courses, enabling students to understand the production, development, connotation and aesthetic ideas of musical works in order to be able

to play and sing them better. However, it is understood that most teachers still use the traditional form of teaching in these music theory courses, which has become somewhat outdated in the era of rapid development of the internet. There are probably the following problems regarding this current point: firstly, contemporary university students are basically the natives of the Internet information age, and they have an innate affinity for all kinds of electronic products and Internet software. Most contemporary university teachers, on the other hand, are not sufficiently skilled in the operation of online electronic products and so on, and mostly just use documents, PPT and other functions. In addition, the classroom atmosphere in most music theory courses is not lively enough. Most music theory courses are not as active as practical courses, which makes them boring. The traditional teacher-teacher lecture and student-acceptance mode of teaching does not encourage students to take the initiative to learn. In addition, the unrestricted use of mobile phones in the university classroom makes many students play with their mobile phones in the classroom and do not actively think about or participate in the questions posed by the teacher in the classroom, which has a great impact on the learning efficiency and even fails to grasp the knowledge learned.

### **Suggestions**

1. Make full use of the music club teaching model to supplement ethnic music theory materials

The development of music in China has lagged behind and music education has been profoundly influenced by Western music, so today's music theory knowledge system is more western music theory and rarely involves elements of local music theory. In fact, China has a long history and music has changed along with it. There are many different types of Chinese folk music with profound meanings, and there is a great deal of musical wealth to learn and absorb. To address this situation, schools need to use music clubs to attract the interest of a large number of students who enjoy music theory classes, change the past mode of setting up music theory courses and incorporate a large amount of traditional music theory knowledge into today's theory class teaching system to enhance students' understanding of China's folk music and help them grasp the differences in world music. For example, traditional music sight-singing courses, ancient Chinese music voice sight-singing courses, and so on, can be set up, and a large number of classical

music works can be incorporated into theory classes to improve students' musical understanding and comprehensive practical skills.

2. Classroom exercises to deepen students' understanding of what they have learnt

The knowledge taught by teachers in music theory classes is often the focus of a particular chapter of the textbook, and students need a process of digestion to understand and master the knowledge taught, and a process of practice to improve their ability to use it. If the teacher ends the lecture at the right time and allows the students to carry out exercises in class, so that they can leave the passive state of listening to the lecture and use what they have learned to complete the exercises on their own, they can bring into play the students' subjective initiative and improve the efficiency of classroom teaching. This change in the position of teachers and students enables students to accept the learning task with a calm mind and deepen their understanding of what they have learnt in the process of completing the exercises. The teacher's lecture in the classroom can form a first impression in the student's mind. This first impression may be a basic understanding of what the teacher has taught, a partial understanding, or a lack of understanding. By completing classroom exercises that are consistent with what the teacher has taught, students will have a second impression in their minds. The second impression is a deepening of the first impression and is based on the knowledge acquired in the first impression. In the process of transforming first impressions into second impressions, students are able to deepen their understanding of what the teacher has taught them by carrying out exercises based on what the teacher has taught them. The rightness or wrongness of the exercises reflects the extent of students' understanding of what they have learnt from one perspective. When the teacher summarises the classroom training, students compare the results of their exercises with the answers given by the teacher. This comparison is both a continuation of students' understanding and a test of their ability to apply their knowledge, a sublimation in their understanding of the theoretical knowledge they have learned in the classroom.

3. Active use of Internet technology, strengthening exchanges and learning with advanced organisations

In order to promote the innovation of music theory basic teaching, we should pay attention to the adoption of Internet technology. At present, Anhui University of Finance and Economics uses network resources equipment for teaching music basic

theory, which mainly includes hardware resources as well as software resources, and this teaching will better improve teaching quality and let teachers and students get a good learning experience. The music teaching and tutoring platform will be more open and free, and implement the effective sharing of international music teaching resources. Therefore, schools should follow the development of society, keep up with the trend of social development and actively take advantage of the use of Internet technology. At the same time, teachers need to change their teaching role and focus on collecting and providing a variety of professional music teaching resources for students, guiding them to reflect their own subject position, implementing independent learning and mutual help and communication with other students and music lovers. As school administrators, they must also actively communicate with advanced arts groups and organisations to share the most cutting-edge and scientific approaches to teaching music theory with our teaching staff.

### Reference

- Li Xuekun. (2020). The application of multimedia technology in teaching music theory in colleges and universities. **The House of Drama**, 2020 (16), 156.
- Yang Yahui. The application of flipped classroom in the teaching of music theory class in colleges and universities. **Northern Music**, 2020 (17), 111-112.

# A STUDY OF WESTERN ASIAN OF WESTERN ASIAN FOLK SONGS TO CREATE A CONTEMPORARY MUSIC “THE ARABIAN MOOD” FOR THE MIXED THAI AND WESTERN ENSEMBLE

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## Abstract

Objective of the research is to study music traits of the Western Asian countries (Iran, Saudi Arabia, and Turkey) to understand its character for creating a new piece entitled “Arabian Mood” to be performed by a mixed ensemble of Thai and Western instruments. Research methodology is creative-qualitative research. The result of research is knowledge of Japanese, Korean and Chinese music traits. The analysis of this knowledge was used for creating the new composition entitled “Sound of the Dawn” to be performed by a mixed ensemble of Thai and Western instruments.

**Keywords :** Arabian Mood , Thai Ensemble, Western Ensemble

## Introduction

Western Asian consists of many countries such as Iraq, Iran, Saudi Arabia, Turkey, etc. This area represent the Arabic world. The traditional Arabic music traits of these region reveal people’s ways of life which reflects their thought and imagination in music creation. These people in a particular region absorbed their culture and having accumulated knowledge of their music, songs, believe, festival and ritual which was reflected in their compositions, especially in the traditional or folk music both for entertainment and ritual music.

The diversity in this music traits are such as tuning system, melodies, rhythm, tone color, instruments, musical forms, and music literature. Researcher are interested in studying the Arabic music for using those musical elements to recreate the new compositions to be performed by Thai and western mixed ensemble.

## Objectives

1. To study the overall Arabian music traits of Western Asian countries.
2. Using knowledge in music traits of Arabic music for creating the new composition entitled “Arabian Mood” to be performed by Thai and Western mixed ensemble.

## Literature Review

Researcher reviewed many books as shown in references and the knowledge of study that can summarize to make it fits to this article are as follow:

The Arabic music was rooted from music of Persia since ancient Mesopotamian era in Western Asia. The tuning system, the style of performance and the instruments are unique to Arabian music. The tuning system is 24 quarter tones in which one octave is divided into 24 portions equally and the selected mode is based on this tuning system called Dastgāh. Dastgāh is a musical modal system in traditional Persian art music that like the mode in Western music. Persian music consists of number of Dastgāh; despite 50 or more extant Dastgāh.

The Persian music influenced to all countries in Western Asian region because of rising and expanding of Islam throughout the region ranging from Afghanistan at the east to Turkey at the west and covers entire of Arabian Peninsula.

The music of Afghanistan comprises many varieties of classical music, folk music, and modern popular music. Afghanistan has a rich musical heritage and features a mix of Persian melodies, Afghanistan has many ethnic groups who speak not only main national language – Pashtoo and Dari – but also their own language such as Uzbeki, Turmeni, Baluchi and Zpashai (language of Nuristan). Each of ethnic groups has its own musical style. The most important ones are as follow:

The Logari style: Typical Afghani originated in Logar southern province where Pashtoo and Dari are spoken and main instruments used for this style are rubab, dhole, sarindah and harmonium. Kandahar: its under Indian music; main instruments are harmonium and tabla, rubab, tanbur, and shpielai. Herati style: Originated in the historical district of Khorasan, included musical culture of Bagghis, Ghor and partly Farah, song are sung in Dari, main instruments are dutar, rubab, tanbur, दौरا and zerbaghali. Nagherhara: various styles of Teppa, Tchardeit, Bagatai, and Ghazal, song text in phastoo. Instruments are harmonium, rubab, sarindah, dhol, shpielai. Nuristani: eastern Afghanistan, original manner of playing, song text in Paschali sung in call and response form, instruments are Nai, sarindah, and dhol.

In Turkey: the Turkish music roots in the period of Ottoman rule, the sound of Turkey was greatly influenced by surrounding cultures and their musical traditions include the Arabs, Persians, and even the Byzantine (Eastern Roman) churches of Istanbul, bringing with them their musical techniques and methodologies. A classical music existed within Ottoman palace, eventually moved out and into the streets of the empire, from performances within the royal harems - for women, by women, these practices made their way to the public via male street performers, or rakkas. Ottoman military bands are thought to be the oldest variety of military marching bands and was usually associated with the Janissary corps of the Army. It is known that Abdülkadir Meragi, the great Turkish music tradition, it is a sign of majesty, splendor and might, rather than a vehicle for merriment. Major instruments are tambur or tanbur - long-necked plucked lute, ney (end-blown flute), kemençe (bowed fiddle), oud (plucked short-necked unfretted lute), and kanun plucked zither.

In overall, Arabic music has a specific music theory particularly the mode and scale as well as musical structure. The core of music is called Makham; makham is based on a musical scale of 7 notes that repeats at the octave. Some maqams have 2 or more alternative scales (e.g. Rast, Nahawand and Hijaz). Maqam scales in traditional

Arabic music is microtonal, not based on a twelve-tone equal-tempered musical tuning system as is the case in modern Western music. Some book states that: The modern Arab tone system, or system of musical tuning, is based upon the theoretical division of the octave into twenty-four equal divisions or 24-tone equal temperament (24 TET), the distance between each successive note being a quarter tone (50 cents, Ellis).

Most of the maqam includes a perfect fifth or a perfect fourth (or both), and all octaves are perfect. The remaining notes in a maqam may or may not exactly land on semitones and it has been taught mostly orally, and by extensive listening to the traditional Arabic music repertoire. The Arabic music includes collection of many melodic figures call radif (order) which is preserved through many generations by oral tradition. The traditional music of Arabic music mostly in Iran is based on the radif, and they also have taqsim a melodic musical improvisation usually precedes the traditional performance of the Arabic musical composition.

## Research Methodology

Research methodology is “creative research” consists of two parts, the research part, and the creative part. The research part is qualitative research studying a specific music trait of traditional music of Arabic world. The creative part is composing a new series of music entitles “Arabian Mood” to be performed by mixed Thai and western instruments”. The following are working steps of this research:

1. Studying the significant of the Arabic music traits.
2. Study music literature and composition for writing new music.
3. Composing the new pieces entitled “The Arabian Mood”.
4. Having experts to investigate the new composition.
5. Revising the new music follow the expertise’s suggestion
6. Presenting the new composition to public

## Results

### Part 1 Music of Western Asia

The music traits of Western Asian countries or the Arabic music are characterized by the modern Arabic musical tuning system is based upon the theoretical division of the octave into twenty-four equal divisions or 24-tone equal temperament, the distance between each successive note being a quarter tone (50 cents, Ellis). The melodic contour of the Arabic music is undulating, having moderato tempo which in one and a half octave range or more bases on the instruments and individual tune. The melody is gentle, joyful which part of syncopation of more exciting in style of improvisation. Most of instrument to be used are stringed instruments such as lute, fiddle, and zither mixed with blown instruments - flute and accompanied with local drums. There is no melodic percussive instrument.

### Part 2 New Composition “Arabian Mood”

The new composition entitled “The Arabian Mood” is a kind of dance music, it is a single composition. The Arabian Mood portrays joyfulness life of the people during the daytime daily life, people’s work, communication, and dancing to cerebrate their successful and enjoying of the happiness. The composition comprises of two parts, the medium tempo (moderato) and the fast tempo (allegro) as shown in the following notation.

The notation shown below consists of the full score and the instrumental part.

Full Score  
The Arabian Mood

Panya Roongruang

arch

Dr.panya

The musical score is arranged in a standard orchestral format. It begins with a 2/4 time signature. The first section, labeled 'arch', shows the string instruments (violin I, violin II, viola, violoncello, and double bass) with rests. The woodwind section includes piccolo, flute, oboe, and clarinet in Bb, all with rests. The brass section features trumpet in Bb, horn in F, and trombone, with some rhythmic patterns. The piano part is mostly silent. The percussion section includes timpani (rests), snare drum (active with rhythmic patterns), and cymbals (rests).

March

Dr.panya

The musical score is arranged in a standard orchestral format with the following parts from top to bottom:

- Voice 1 (Thai text: ฟ้า งาม งาม)
- Voice 2 (Thai text: ฟ้า งาม งาม)
- Voice 3 (Thai text: ฟ้า งาม งาม)
- Voice 4 (Thai text: ฟ้า งาม งาม)
- Voice 5 (Thai text: ฟ้า งาม งาม)
- Violin I
- Viola
- Violoncello
- Double Bass
- Piccorno
- Flute
- Oboe
- Clarinet in Bb
- Trumpet in Bb
- Horn in F
- Trombone
- Piano
- Timpani
- Snare Drum
- Cymbals
- Contonut

The score is written in 2/4 time. The vocal parts and most woodwinds are in treble clef, while strings and some brass are in bass clef. The percussion parts (Snare Drum, Cymbals, Contonut) are in a simplified notation with a double bar line and a 2/4 time signature.

2

9

เสียงขับร้อง

เสียงขับร้อง

เสียงขับร้อง

เสียงขับร้อง

Vln. I

Vln.

Vc.

Dbl.

Picc.

Fl.

Ob.

Cl.

Tpt.

Hrn.

Tbn.

Pno.

Timp.

S. D.

Cym.

Cow.

**A** 17 Waltz 3

The musical score is for a waltz in 3/4 time, marked with a tempo of 17. It features a variety of instruments and vocal parts. The vocal parts include Thai lyrics: "มี นลิน", "สุด นลิน", "ณ นลิน", and "มี น. นลิน". The instrumental parts include Violin I, Viola, Violoncello, Double Bass, Piccolo, Flute, Oboe, Clarinet, Trumpet, Horn, Trombone, Piano, and Timpani. The percussion section includes Snare Drum (S.D.), Cymbal (Cym.), and Cowbell (Cow). The score is divided into two systems, with the second system starting at measure 17. A rehearsal mark 'A' is placed at the beginning of the second system. The piece concludes with a 4-measure ending.

4

25 Key Cmaj

เสียงร้อง:  
ซาวร์:  
อัล:  
เท็น:  
บาส:  
Vln. I  
Vln. II  
Vc.  
Db.  
Picc.  
Fl.  
Ob.  
Cl.  
Tpt.  
Hn.  
Tbn.  
Pno.  
Timp.  
S. D.  
Cym.  
Cow.

**B** 37 Quick Waltz 5

ปี่ นักร้อง  
ฆ้อง วงศ์  
ด้วง  
แฉก น.เล็ก  
ฆ้อง วงศ์  
Vln. I  
Vla.  
Vc.  
Db.  
Picc.  
Fl.  
Ob.  
Cl.  
Tpt.  
Hrn.  
Tbn.  
Pno.  
Timp.  
S.D.  
Cym.  
Cow.

6

41

ปี่ ขลุ่ย

ระนาด ซอด้วง

ฉิ่ง ฉิ่ง

ฆ้องวง ร.เล็ก

ขลุ่ยวง ร.ใหญ่

Vln. 1

Vln.

Vc.

Db.

Picc.

Fl.

Ob.

Cl.

Tpt.

Hrn.

Tbn.

Pno.

Timp.

S. D.

Cym.

Cow.

49 7

เสียงร้อง  
เสียงร้อง  
เสียงร้อง  
เสียงร้อง  
Vln. I  
Vln. II  
Vc.  
Db.  
Pcc.  
Fl.  
Ob.  
Cl.  
Tpt.  
Hrn.  
Tbn.  
Pno.  
Timp.  
S. D.  
Cym.  
Cow.

8

57

The image shows a page of a musical score for 'The Arabian Mood'. It features a full orchestral arrangement with vocal parts. The instruments listed include Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Trumpet (Tpt.), Horn (Hrn.), Trombone (Tbn.), Percussion (Perc.), Violin 1 (Vln. 1), Viola (Vla.), Violoncello (Vc.), Double Bass (Db.), Piano (Pno.), Timpani (Timp.), Snare Drum (S.D.), Cymbal (Cym.), and Cowbell (Cow.). The score is written in a standard musical notation with a key signature of one flat and a 4/4 time signature. The vocal parts are written in Thai script. The page number '8' is in the top left, and the measure number '57' is at the top of the first staff. The score includes various musical notations such as notes, rests, and dynamic markings.

**Utilization of Research Result**

1. Having musical score and parts of the new music “The Arabian Mood” for public used.
2. Performing new music for public, internet, face book or for the conference if any.

The new composition will be an example of studying international music to use for composing Thai contemporary composition performed by Thai and western musical instruments mixed.

## Discussions

Creative research is met with Thailand 4.0 policy, it's a kind of value added on top of ordinary research which is come up with the pure knowledge as a research result. But the creative research produces new creative work such as new compositions or songs that are able to give new creative ideas for listeners, encourages and inspires listener for further thinking in order to produce some new works.

The composition "The Arabian Mood" in this research is a combination of Thai and Western music knowledge but not concentrate much on western musical harmony but making it as an easy listening music, so that the researcher never uses complex chords, but principle one and using a simple form of music. An important idea is to make music depicting atmosphere of Arabian people's feeling, emotion as well as musical idioms to show identity of Arabic tradition.

Suggestion for other creations, creator and researcher may compose the new music bases on others traditional folk music such as music of Southeast Asian countries.

## Reference

- Asian/Pacific Music Materials Co-production Programme (MCP). (1979). **Instrumental Music of Asia and the Pacific. (Series 2-1, 2-2, 2-3)**. Tokyo: Asian Cultural Center for UNESCO (ACCU), 1983,1985
- Asian/Pacific Music Materials Co-production Programme (MCP). (1980). **Songs of Asia and the Pacific (Series 3-1, 3-2)**. Tokyo: Asian Cultural Center for UNESCO (ACCU),
- Asian/Pacific Music Materials Co-production Programme (MCP). (1988). **Folk Songs of Asia and the Pacific (Series 4-1, 4-2,)**. Tokyo: Asian Cultural Center for UNESCO (ACCU), 1990.
- Kaemmer, John E. (1993). **Music in Human Life Anthropological perspectives on Music**. Texas: University of Texas Press.
- May, Elizabeth. (1993). **Music of Many Cultures**. Berkley: University of California Press.
- Miller, Terry E. & Shahriari, Andrew. (2006).**World Music A Global Journey**. New York: Routledge Taylor & Francis Group, 2006
- \_\_\_\_\_. **Cassette tapes for Asian Music Survey**, Kent State University.

- \_\_\_\_\_. **Cassette tapes for Seminar in East Asian Music**, Kent State University.
- Nettl, Bruno and Companies. **Excursions in World Music**. New Jersey: Prentice - Hall Inc.,1992
- Roongruang, Panya. (2561). **Kaan-wijai-sangsan-thang-dontri-lae-natasin-Thai (การวิจัยสร้างสรรค์ทางดนตรีและนาฏศิลป์ไทย)**. Document for music conference, Music Educators Association (Thailand).
- Sadie, Stanley. (1980).**The New Grove Dictionary of Music and Musicians**, 1st edition. London: Macmillan Publishers Limited.
- \_\_\_\_\_. (2001). **The New Grove Dictionary of Music and Musicians**, 2nd edition. London: Macmillan Publishers Limited, 2001

## ADMINISTRATION UNDER THE DEMING CYCLE THEORY

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### Abstract

This research aimed at examining the administration in the Subdistrict Administrative Organization under the Deming Cycle theory Muang District, Sisaket Province, to explore factors affecting the administration in the Sub-District Administrative Organization under the Deming Cycle theory Muang District, Sisaket Province, and to suggest guidelines for the development of management under the theory of Deming. Research tool was a questionnaire, which was designed to collect data from officials of Subdistrict Administrative Organization. Data were analyzed by mean, standard deviation, correlation, and multiple regression. The research results were found that most of officials were women with an average age of 34.78 years, and an average of 4 years of work experience. There was a high level of opinion on the administration under the Deming Cycle theory. Factors that affect the administration under the Deming Cycle theory were: personality and professional competence which could be predicted by 61,62 percent, respectively. The respondents suggested that the planning process should be developed covering all sectors (75 officials). Operations management must be consistent with the plan to minimize management bias (58 officials). The evaluation system should be continually developed in accordance with the plan (36 officials). The administrators should be a priority to continually improve the operational system of the Subdistrict Administrative Organization (29 officials).

**Keywords:** Deming Creativity; success; police occupation

### Introduction

Local government is a form of decentralization. Local administrators tend to focus local administrations in line with the missions of the central government. As a result, the administration must appease the central government, which at times may not truly meet the needs of the local people. This is why the administration of local

governments is often condemned as a failure because the benefits from the administration rarely benefit the people. It is also creating corruption to expand more widely. However, if the administrators of local government organizations mismanage, the people will not come out to oust or remove from office. Therefore, the administration under the Deming cycle is important for the administration of the local administrator as an agency closest to the people.

Although there are various forms of management, the most popular form of management is Deming's style of management. Today, the education community is focused on applying Deming's theory to quality assurance of education. Nonetheless, Deming-style management has not yet prevailed in the administrative system of local authorities, leading to unresolved mistakes. Consequently, the serious implementation of Deming's principles of administration in the administrative process of local governments will help reduce mistakes and will also benefit the overall management. Of course, the general administration may take a similar approach to the Deming's management, but it won't go into the same detail as the Deming's. Moreover, management tends to focus on producing documented reports which are not put into practice in the organization. So, it doesn't bring any practical benefit.

Based on previous studies, it was found that the implementation of Deming's management processes has helped organizations succeed. This is because Deming cycle management is management that promotes analytical thought processes and can lead to concrete action. However, it may encounter some problems of management, such as transferring knowledge to older subordinates and tending to reject modern management concepts.

Putting Deming's Unified Management Theory into practice in local governments would create an efficient management system because it would allow error detection and prompt corrective action. Rapid improvements in administrative errors can help organizations drive success. It will also make employees in the organization create awareness together in solving the problems of the organization.

Although the administration of local government organizations has a specific form of administration in accordance with the tasks set forth by the Act for the best interest of the people, it still lacks practical administrative efficiency. Therefore, the development of management processes based on the Deming Cycle theory is essential for effective organizational management.

However, it is urgent that local government administrators need to be aware of the process of planning, operating, monitoring, and improving through a participatory process, which is a comprehensive management process as a whole.

From the above problems, we are interested in studying the administration under the Deming cycle.

### **Research objectives**

1. To study the administration in the Subdistrict Administrative Organization under the Deming Cycle theory Muang District, Sisaket Province
2. To explore factors affecting the administration in the Sub-District Administrative Organization under the Deming Cycle theory Muang District, Sisaket Province
3. To suggest guidelines for the development of management under the theory of Deming

### **Literature Reviews**

Effective management is essential to complete management. Although scholars argue about the quality of organization-wide management that success factors are not a single factor but multiple factors that are necessary to be fulfilled, it is inconclusive that: What type of quality management is the best? It was necessary to explore sufficient solutions for quality management throughout the organization. Here, the research team needed to explore Deming's theory to come up with a good controversy.

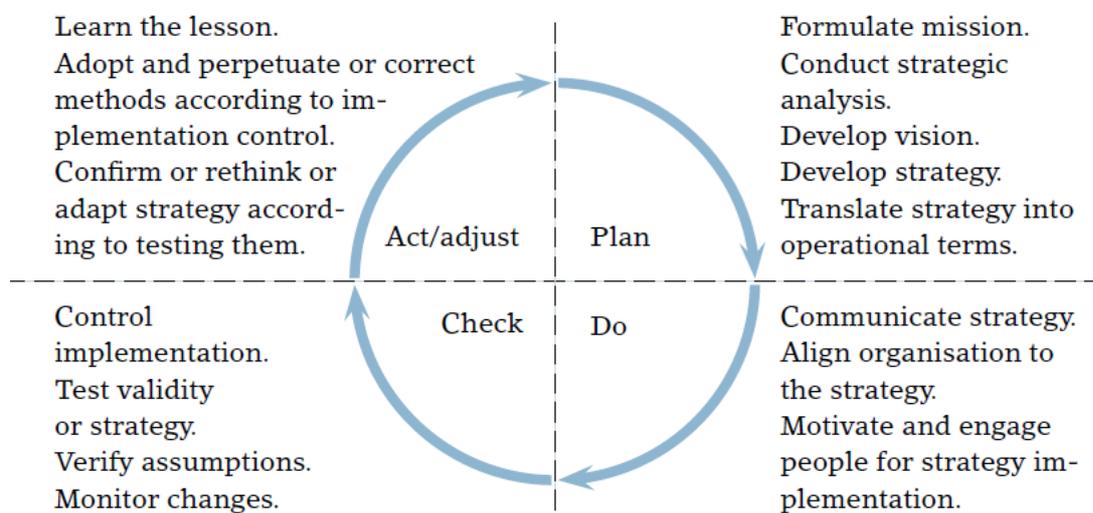
Ontam (2019) stated that planning is a goal/objective step that must be consistent with the organization's policies, vision and mission. In addition, the planning process must consider facilities such as human resources, personnel, and budget to link the goals or success of the organization.

Taufik (2020) pointed out that The PDCA approach is useful to continuously make improvement that is more future-oriented, flexible, logical, and reasonable. Indeed, there are four phases of PDCA cycle, namely, Plan, Do, Check, and Act. That is to say, plan phases refer to setting goals and strategies to achieve specific result. Do is defined as created previously step. Check means inspection process stages have been monitored and evaluated based on specifications. Act is defined as improving performance. He further said that PDCA is applied to reduce waste such as waiting time, idle, failure, and defects.

Kotvitska, et a., (2019) stated that the adoption of PDCA to improve the efficiency of pharmaceutical companies in Ukraine has been very positive. It has also increased the efficiency of streamlining the quality of work.

Ghosh, et al., (2022) stated that the PDCA process is a process that enables organizations to improve the quality of their work in the organization, resulting in an overall picture of effective organizational management.

Paliszkievicz and Paliszkievicz (2018) pointed out that the PDCA cycle was quality improvement process known as strategic learning process. (Figure 1)



Source: Paliszkievicz and Paliszkievicz (2018: 153)

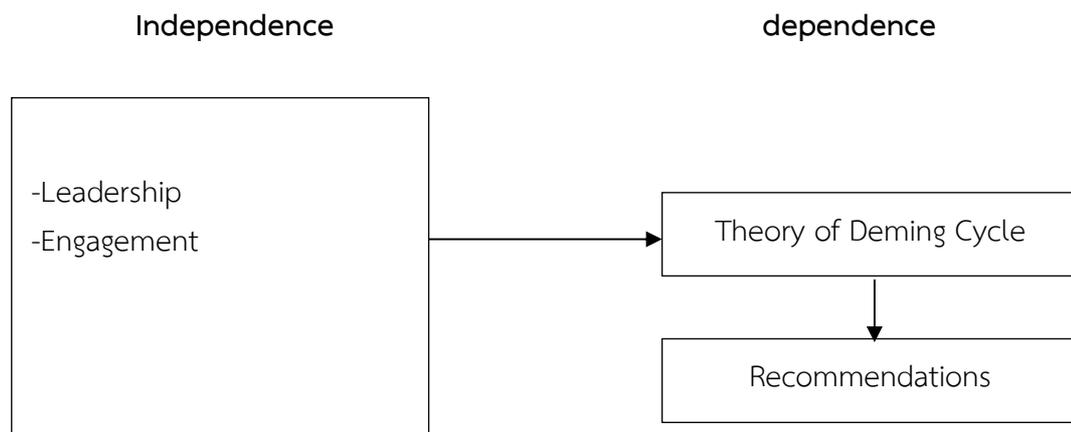
However, previous research has confirmed that organizational leadership can drive the PDCA cycle, that is, leadership influences the success and failure of an organization. For instance, if the leader is bad or irresponsible or lack of creativity, he or she will not be able to create success for the organization. Therefore, leadership is essential to success in driving the PDCA process to be successful.

One group of scholars who argues that leadership influences success or change for the better is Massoudi, et a., (2019), whose research indicates that Leadership influences organizational change, in which leaders can create a system for improving the quality of management in an organization to be effective by talking with followers to find solutions together.

In summary, it is clear that continuous and successful improvement of management quality requires cooperation from all sectors, especially leaders who must have creative ideas and accept opinions from all sectors and come up with

constructive solutions together. Listening to each other's views will help each other to come up with the best alternative solutions to address problems or obstacles that prevent organizational goals. Although there is some debate in the hearing process, it will eventually help all parties to accept the best option. Because everyone knows that the organization is always important and if the organization fails, everyone in the organization fails too. (Figure. 1)

### Conceptual Framework



**Figure. 1** conceptual framework

### Research Methodology

#### Research patterns/methods

This research is quantitative research.

Theory of Deming Cycle is composed of 1) Plan 2) Do 3) Check, 4) Act

Factors affecting Deming cycle include leadership and engagement.

#### Population and sample

1. The population used in this research was officials of Subdistrict Administrative Organization.

2. The sample group used in this research study was officials of Subdistrict Administrative Organization.

1. The status of the respondents are as follows:

1.1 Gender

1.2 Age

1.3 Experience

2. Independent variables are leadership and engagement

3. The dependent variables were Deming cycle, consisting of 1) Plan 2) Do 3) Check, 4) Act

### **Research Tools / Data Collection Methods**

Data were collected from a questionnaire with a sample of 300 officials of the Subdistrict Administrative Organization of Muang District, Sisaket Province.

### **Data analysis**

The personal data of the respondents were analyzed descriptively. Factors were analyzed by correlation and multiple regression equations.

## **Results**

Most of officials were women with an average age of 34 years, and an average of 4 years of work experience. There was a high level of opinion on the administration under the Deming Cycle theory. Factors that affect the administration under the Deming Cycle theory were: leadership and engagement which could be predicted by 61,62 percent, respectively. The respondents suggested that the planning process should be developed covering all sectors (75 officials). Operations management must be consistent with the plan to minimize management bias (58 officials). The evaluation system should be continually developed in accordance with the plan (36 officials). The administrators should be a priority to continually improve the operational system of the Subdistrict Administrative Organization (29 officials).

## **Discussions**

The research results were found that most of the sub-district administrative organization employees had an average age of 34 years, and had more than 4 years of experience. The officials had never known that they were in operation of PDCA process. Nevertheless, they were familiar with the traditional working process according to the administrative system or mechanism under the local act. Working in the traditional way cannot solve complex problems. Therefore, the original form of work should be changed to suit the changes in the globalized society.

Nonetheless, when considering the factors influencing the organization's success under Deming's management, it was found that leadership and engagement had a direct positive influence on driving a better-quality organization. This was consistent with research results of Mossoudi, and Hamdi (2019), which indicated that both leadership and engagement were essential to the success of an organization in

quality improvement. Leadership was a key success factor in driving the perfection of Deming's lifecycle management, while corporate commitment was a factor accelerating employees in the organization to realize the improvement of the quality of management to be effective. In addition, employee engagement in the organization was a success factor in organizational development. However, there were other factors, which did not mention. This was the reason why authors wanted to investigate only 2 issues, and try to understand what happened to the two variables in order to prevent discrepancies from the variables.

Although other variables were not studied, both leadership and engagement did not explain the phenomena occurring in the organization. Previous research results were found that employee's engagement affected to organizational development (Mkheimer and Mjlae, 2020).

## **Suggestions**

### **Suggestions for development**

According to research results, most of officials were women with an average age of 34.78 years, and an average of 4 years of work experience. Factors affecting the administration under the Deming Cycle theory were: leadership and engagement. Therefore, relevant agencies should focus on the development of leadership and engagement as follows:

- 1) Local authorities should promote ongoing training on local leadership development programs.
- 2) Local authorities should promote effective teamwork.
- 3) Local authorities should promote participatory processes in the preparation of action plans that respond to local people.
- 4) Local authorities should implement projects that promote organizational engagement in order to create a good organizational culture.
- 5) Local authorities should promote a collaborative process to continually improve the Demings administrative process.

### **Recommendations for research**

The results of the research also found that leadership and engagement were a key factor for organizational development. Therefore, there are suggestions for further study as follows:

1 ) The selection of other variables should be expanded to improve the management process according to Deming's theory.

2 ) Other variables, affecting the administration of the Deming Cycle theory should be studied.

### Reference

- Kotvitska, A., Lebedynets, V., and Karmavrova, T. (2019). The PDCA Cycle Implementation at the Internal Audit Process of Quality Management Systems of Pharmaceutical Companies. **The Pharma Innovation Journal**. 8 (2), 709-713.
- Mossoudi, A.H., and Hamdi, S.S.A. (2019). Reciprocal Leadership Influence on Organizational Change. **Cihan University-Erbil Journal of Humanity and Social Science**. 3(1), 20-26.
- Ontam, N. (2019). PDCA (Deming Cycle) Management Techniques. **Journal of Association of Professional Development of Educational Administration of Thailand (JAPDEAT)**. 1 (3), 39-46.
- Pietraz, M., and Paliszkiwicz, J. (2018). Framework of Strategic Learning: The PDCA Cycle. **Management**. 10 (2), 149-161.
- Taufik, D.A. (2020). PDCA Cycle Method Implementation in Industries: A Systematic Literature Review. **Indonesian Journal of industrial Engineering & Management**. 1(3), 157-166.
- Mkheimer, I., and Mjlae, S.A. (2020). Factors of Employee Engagement and Organizational Development: Are they Linked? **International Journal of Recent Technology and Engineering**. 8 (5), 788-797.

## BUSINESS INTELLIGENCE TRENDS

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### Abstract

Business intelligence (BI) trends has made great progress in 2021 through combined information technology. It has become an efficient tool and can collect data to prepare reports in various appropriate formats for the analytical perspectives, and to meet user needs. It can also support executive decision-making and organizational business. This article aimed to explore BI trends.

**Keywords:** Business intelligence (BI), Data warehouse

### Introduction

Business Intelligence (BI) is currently an indispensable tool for both small and large organizations. Executives need to exploit all available data to predict future possible outcomes in order to make management decisions, e.g. planning to increase income or performance improvement. However, there have been some changes due to COVID-19. A larger number of people work from home. BI is a supporting tool for work of executives, users, and different part of the company. It brings development and changing trends in several aspects, e.g., BI tool development of service providers or BI application.

### Business Intelligence (BI)

Business Intelligence (BI) is a management tool and an assistance tool for business data management as well as customization, with the key objective for more efficient decision-making on businesses (Ghoshal & Kim, 1986; Gilad & Gilad, 1986). BI is a decision support system (DSS) driven by data search and database records. Data is reported to executives later for their acknowledgement of current and future situations (Saeed & et.al., 2012). Data can be analyzed in several aspects as needed,

e.g., operational analysis for executive decision-making on investment; marketing analysis and planning for distribution channel assessment; analysis of products with maximum profits-minimum loss/deficits for marketing and production planning; analysis of factors affecting sales volumes; competitor analysis; etc. (Wittaya Pornpatcharapong, 2010). For the advantages of BI, it can simply be used without the requirement for knowledge of database at all. Users just select items they need, and they will get results as expected. Data is accurate and precise, and thus it can be used to help faster decision-making than competitors, both in the horizontal and deep aspects. Users can retrieve data from various databases for analytics, e.g., Excel, FoxPro, Dbase, Access, ORACLE, SQL.Server, Informix, Progress, and DB2 without writing programs. Data in tables can instantly be used in Excel, basically used for calculation, drawing tables, or drawing graphs.

### **BI Basic Components and Process**

There are 4 BI basic components, i.e., 1) *database management layer*, related to the use of technologies or software for internal as well as external database management and data warehousing; 2) *business analytics layer* to develop various quantitative models, e.g., financial models, predictive models, or decision tree model; 3) *business performance management layer* to apply organizational management concepts, e.g., key performance indicators (KPI), balance scorecard, or six sigma as indicators and directions of data analytics in order to drive business procedures to be in accordance with objectives; and 4) *user interface layer*, a communication part between BI and users (Jongsawas Chongwatpol, 2019).

There are 4 steps of BI process, i.e., 1) *extraction, loading, and transfer (ELT)*, which is to remove irrelevant data and to transform all data into the same format before transfer to data warehouse; 2) *data warehouse* to store data in accordance with related dimensions, divided into dimension tables and fact tables; 3) *online analytical processing (OLAP)* for data processing by data organizing and dimensional data structure storage (Multidimensional data) for complex data analytics; and 4) *presentation* of analytic results and can be displayed in different formats, e.g., dashboards, spreadsheets, or reports (Tanaporn Panrungsri, 2018) as in Fig. 1.

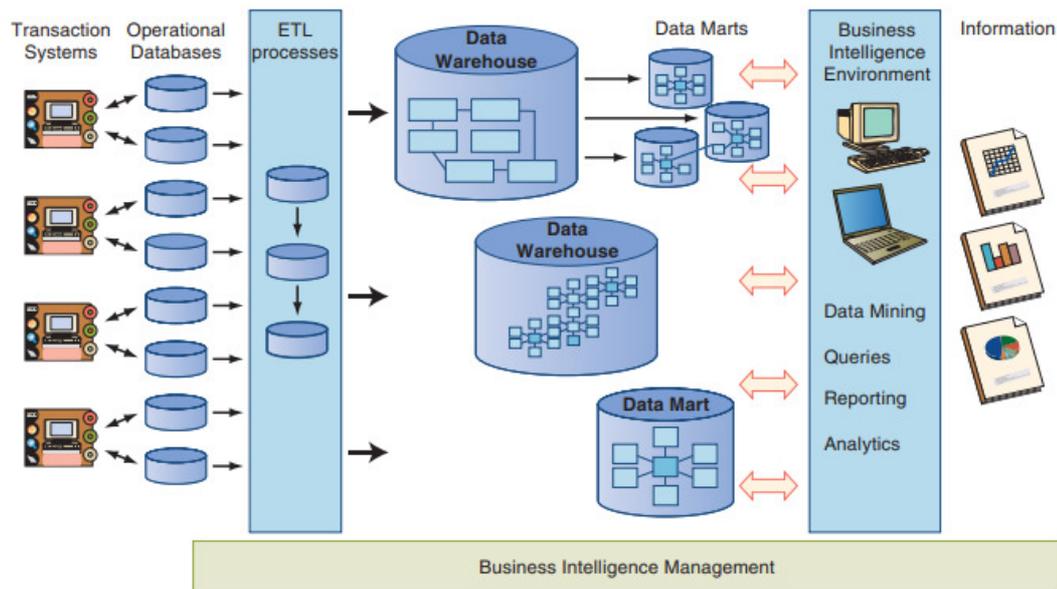


Fig. 1: BI Management Process.

Source: Gregory R. Wood Linda Volonino and Efraim Turban 2013, page 71.

### The Difference Between Business Intelligence and Data Warehouse

Data warehouse refers to “Data Information” designed to store a large amount of data. It is a large database in which data of all parts of an organization has been collected from the past until currently (Fernando., A., 2017). As for BI, it is a tool and an application for analytics and interpretation from data warehouse for further presentation, planning, and decision-making.

### BI Trends

There are currently 15 popular BI tools that support current businesses according to BI trends, i.e., 1) SAP Business Objects, 2) Datapine, 3) MicroStrategy, 4) SAS Business Intelligence, 5) Yellowfin BI, 6) Qlik Sense, 7) Zoho Analytics, 8) Sisense, 9) Microsoft Power BI, 10) Looker, 11) clear Analytics, 12) Tableau, 13) Oracle BI, 14) Domo, and 15) IBM Cognos Analytics (Erin., G. H., 2019).

For BI Application, it can be described as below.

James., A. (2021) stated that there are 11 aspects of BI application trends as follows. 1) *Storytelling becoming a norm*: Businesspersons pay more attention to driving business data by analytics and storytelling, which increases contexts of statistical analytics and deep processing appropriate for BI. 2) *Data governance*: It is a process that guides all data organizing so that it can be delivered completely and

reliable when it is brought for processing with BI. 3 ) *The emergence of voice-activated assistants*: It refers to voice commands, transcription, and transforming into reliable data for further analytics to obtain deep data. 4 ) *Connected Cloud*: BI on Cloud has become a key power of big data and analytics of all BI components, including data models, data sources, processing power, data storage, and analytics models. These are all developed and operated on Cloud. 5 ) *Collaborative BI on the rise*: This trend was originated from the necessity of increasing collaboration under business environment. Collaborative BI make it easier for sharing, analytics, and reports. Therefore, it supports more efficient decision-making. 6 ) *Self-service BI interfaces*: This service is the most significant for a great number of businesses. It facilitates users to manage BI on their own with no need to operate through IT team. 7 ) *Data security*. 8 ) *Artificial intelligence (AI)*: AI is currently applied with BI, e.g., AI systems and machine learning that requires transparency of reliable AI systems and learning models that can describe business effects. 9 ) *Data quality management (DQM)*: Increasing DQM is a key process of combined technologies, processes, users, and organizational culture for complete data that is appropriate for analytics and for further use of BI. 10 ) *Actionable analytics everywhere*: Usable analytics technique is one of analytical trends and BI. Because of efficient tools of BI, e.g., dashboard extensions, embedded API analytics, or mobile device analysis for easier data analytics and operation. 11 ) *Data discovery*: It is a business process focusing on users as the center for data collection from various silos and databases as centralized sources for easier analytics and search for formats as well as specific trends in datasets. The use of efficient data visualization makes this process easy, fun, and fast. Visualization is better than regular static reports.

Simultaneously, Eliza., S. (2021) stated about BI trends as follows. 1 ) *Artificial intelligence (AI)*: It supports data analytics and management of businesses that are developed in several directions, e.g., the Internet of things (IoT) to find out what are happening and to predict the future. 2 ) *Predictive analytics tools*: Predictive analytics technique is a key problem for most BI experts because it is the foundation of current situation analysis and prediction of the future. Large and small organizations are exploiting big data as a key point of analytics process. These organization must understand products, customers, and partners to show opportunities and risks. 3 ) *Data automation*: It strengthens BI, which facilitates organizations to collect data for easy data management. 4 ) *Expansion of integrated systems*: They refer to the

capability of system integration that will happen in BI, including integrated operational functions. Users can simply access necessary systems. 5) *Mobile business intelligence*: It is expected that there will be solutions as mobile applications, e.g., mobile dashboards. Companies will operate and use mobile solutions for real-time access and more flexibility. 6) *Data security*: It is currently a key problem due to higher employees who work from home. Expectedly, privacy rules and regulations will be used for personal data management. Also, investment in data security is expected to increase a lot more. Expenses for data security worldwide will be motivated by privacy rules and regulations and needs for risk management of online businesses. 7) *SaaS BI*: Using accessible tools for analytics is expected to be a determiner of future business analysis. Because of the popularity of work from home, a number of businesses have used SaaS BI to increase flexibility and data access on Cloud. 8) *Collaborative BI*: Using collaborative tools can reduce complexity of data sharing and auto report design. 9) *Data discovery*: It is a process that can create business values and is regarded as a key attraction for business entrepreneurs who need to search for more data. This finally leads to higher use of data and receipt of deep data.

Moreover, according to Kevin., F. (2020), BI trends can affect changes as follows. 1) *Machine learning (ML) and natural language processing (NLP)*: They lead to data analytics improvement, data sharing, and the abilities to understand and respond to data naturally. These tools can also detect trends with outliers, and can present business data to users. 2) *Embedded BI data analytics*: This technique is similar to add-in data analytics. Embedded data analytics facilitates users to view data as dashboards, and reduces burdens in the analytics team. As a result, end users will receive expected data faster. 3) *Data display*: It contains different storytelling from standalone data visualization because there is the starting point, middle point, and finish point; with clarity in accordance with objectives. 4) *Data quality management*: It will become more complex due to changes of data construction, processing, and usage. 5) *Predictive and directive analytical tools*: Predictive analytics technique is a form of advanced analytics. New and previous data is used to predict possible activities, behavior, and trends. Big data of large organizations is a key factor for opportunities of deep and predictive data analytics. It is a statistical analytics technique, analytical search, and ML algorithms with datasets to design predictive models by inserting numbers or scores based on specific

probability. 6) *Hyper automation and robotic process automation (PRA)*: It refers to the use of advanced technologies, e.g., AI, ML, and RPA automation like manpower. They are applied in businesses to support decision-making. 7) *AI and BI*: Analysts currently view AI and BI as not much different technologies because BI mainly focuses on retrospective study whereas AI is mostly related to the future. Therefore, statistical analytics behind is mainly a foundation, unlike ML with special complexity and deep learning algorithms that support AI. 8) *BI on mobile phones*: In the past, mobile screen size is a key problem for data presentation on dashboards because mobile screens are basically smaller than desktop ones. Now, such presentation can be done on mobile applications and successful, e.g., Power BI Desktop of Microsoft.

Drew., R. (2021) stated about BI trends that due to effects of COVID-19 outbreak, work from home emerged instantly. Therefore, companies must adapt in order to catch up with their marketing competitors. BI experts analyze BI trends as follows. 1) BI will be available on Cloud services. 2) The growth of imaging/visualization or presentation formats will facilitate access and better understanding of stories and data from visualized contexts. 3) AI is applied for more precision and more frequent notifications as well as prediction. 4) Data science lacking is very challenging for BI distributors. More advanced analytics have been used more for faster results to a larger number of people. 5) The great digital switch happens from driving more concurrence and integration between data management and analytics. We can currently exploit from trends of accessible and ready-to-use digital data in order to bring in-time and deep data in accordance with contexts to business leaders more.

## Conclusions

BI is a data collection tool for analytics and complex data presentation that is appropriate for competition, and for supporting executive decision-making plans. In 2021, IT has been applied with BI for better efficiency of decision-making results and for more accurate results of trend analysis, e.g., storytelling becoming a norm, data governance, the emergence of voice-activated assistants, connected Cloud, or AI.

## References

- Drew., R. (2021) **Top Business Intelligence Trends for 2021**. Retrieved from <https://www.cioinsight.com/news-trends/top-business-intelligence-trends/>
- Eliza., S. (2021). **TOP 10 BUSINESS INTELLIGENCE AND BUSINESS ANALYTICS TRENDS IN 2021**. Retrieved from <https://www.theenterpriseworld.com/top-10-business-intelligence-and-business-analytics-trends-in-2021/>
- Erin., G. H. (2019). **Top 15 Business Intelligence Tools in 2021: An Overview**. [Online Available]: <https://mopinion.com/business-intelligence-bi-tools-overview/>
- Fernando, A. (2017). **Concepts and Fundamentals of Data Warehousing and OLAP**. INESC TEC and University of Porto. Retrieved from [https://www.researchgate.net/publication/319852408\\_Concepts\\_and\\_Fundamentals\\_of\\_Data\\_Warehousing\\_and\\_OLAP](https://www.researchgate.net/publication/319852408_Concepts_and_Fundamentals_of_Data_Warehousing_and_OLAP)
- Ghoshal., S., Kim, S. K. (1986). Building Effective Intelligence Systems for Competitive Advantage, **Sloan Management Review**, 28(1), 49–58.
- Gilad, B., Gilad, T. (1986). SMR Forum: Business Intelligence, The Quiet Revolution, **Sloan Management Review**, 27(4), 53–61.
- Gregory, R., Wood, L. V. and Efraim, T. (2013). **Information Technology for Management**. Retrieved from [http://itacademic.ir/upload/MIT\\_Ref1.pdf](http://itacademic.ir/upload/MIT_Ref1.pdf) page 71
- James., A. (2021). **11 Business Intelligence Trends for 2021/2022: Latest Predictions You Should Be Thinking About**. Retrieved from <https://financesonline.com/business-intelligence-trends/>
- Kevin., F. (2020). **8 Business Intelligence Trends to Prepare for 2021**. Retrieved from <https://whatis.techtarget.com/8-Business-Intelligence-Trends-to-Prepare-for-2021>
- Saeed, R., Sara, A. & Seyed, V. M. (2012). Review Study: Business Intelligence Concepts and Approaches. **American Journal of Scientific Research**. 50(2012), pp.62-75.
- วิทยา พรพัชรพงศ์. (2010), **Business Intelligence คืออะไร มีประโยชน์ต่อธุรกิจอย่างไร** สืบค้นเมื่อวันที่ 25 พฤษภาคม พ.ศ. 2564 [Online Available]: <https://www.sundae.co.th/article/?cmd=article&id=49>
- รศ.ดร.จงสวัสดิ์ จงวัฒน์ผล. (2018). **ระบบธุรกิจอัจฉริยะ (Business Intelligence) กับการจัดการ Big Data**. สืบค้นเมื่อวันที่ 26 พฤษภาคม พ.ศ. 2564 [Online Available]: <https://www.mbamagazine.net/index.php/intelligent/nida-wisdom/item/626-business-intelligence-big-data#close>

ธนาภรณ์ ปานรังศรี. (2561). การจัดการข้อมูลภัยพิบัติด้วยระบบธุรกิจอัจฉริยะ : กรณีศึกษา  
ผลกระทบระดับความรุนแรงจากภัยแล้ง อุทกภัย และดินถล่มในจังหวัดภูเก็ต.  
(วิทยานิพนธ์ปริญญาโทมหาบัณฑิต). สงขลา. มหาวิทยาลัยสงขลานครินทร์. สืบค้นจาก  
<https://kb.psu.ac.th/psukb/handle/2016/12224>

## CHARACTERISTICS OF ADVANCED ENGLISH GRAMMAR FOR ADVANCED STUDENTS IN PUBLIC ADMINISTRATION

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### **Abstract**

This research was designed to determine the facts concerning advanced grammar for advanced students. The research was qualitative in character. The main sources of the needed data were documents and participant observations. The collected data were analyzed by descriptive analysis.

As a result of data analysis, the researcher discovered the facts specified below:

There are many rules of grammar. As for the rules of advanced grammar, they are among others, the following:

1) Adjective Formation. Adjectives can be formed with many different suffixes, which are added to verbs, nouns, or word roots such as edible, spiritual, defiant, culinary, neurotic, childish, qualitative, worrisome, glorious, cloudy, etc.

2) Gerunds and Infinitives. A gerund is a verb form ending in -ing that functions as a noun. The following verbs must be followed by the gerund: anticipate, avoid, envision, quit, enjoy, delay, facilitate, postpone, resume, etc.

An infinitive is a verb form (to plus the base form) that can be used in the following ways: in subject and object positions, after adjectives and nouns, in adverbial position and in special expressions.

3) Adverbial Clauses. Adverbial clauses are subordinate clauses that indicate the following relationships to the main clause: cause, concession, purpose, degree, contrast and result.

4) Conditional Clauses. Among the other words and phrases that introduce the subordinate conditional clauses are the following: even if, if only, whether ... or not, whether ... or, unless, and as if. Conditional clauses can appear in various forms such as the real condition, wish, the present contrary-to-fact condition, the past contrary-to-fact condition, and the contrary-to-fact condition with mixed time.

5) Noun Clauses. A noun clause may be used anywhere a noun is used: as subject, as direct object, or as object of a preposition. For example, why the two older brothers were so cruel was not known. I would like to know where this story originated. He does not worry about whether or not his brothers are against him.

6) The Uninflected Form. In noun clauses after such verbs as suggest, desire, or urge, the base form of the verb is used in the dependent clause. This is called the uninflected form. Verbs requiring the uninflected form are, inter alia, the following: demand, insist, prefer, suggest, advise, request, require, and urge.

**Keywords:** advanced grammar; advanced students

### บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อจะค้นคว้าหาความจริงเกี่ยวกับไวยากรณ์อังกฤษชั้นสูงสำหรับนักศึกษาระดับสูง การวิจัยนี้มีลักษณะเป็นการวิจัยเชิงคุณภาพ แหล่งข้อมูลที่สำคัญมาจากเอกสารต่าง ๆ และการสังเกตการณ์แบบมีส่วนร่วม ข้อมูลที่เก็บได้มาทำการวิเคราะห์โดยการพรรณนาความ

ผลของการวิจัยปรากฏตามข้างล่างนี้

มีกฎเกี่ยวกับไวยากรณ์มากมาย สำหรับกฎของไวยากรณ์ชั้นสูงมีอาทิเช่น

1) การสร้างคำคุณศัพท์ คำคุณศัพท์สามารถสร้างได้ด้วยการเติม Suffix (คำที่เติมหลัง) ให้แก่คำกริยาบ้าง คำนามบ้าง รากศัพท์บ้าง เช่น edible, spiritual, defiant, culinary, neurotic, childish, qualitative, worrisome, glorious, cloudy เป็นต้น

2) Gerund and Infinitive. Gerund เป็นรูปแบบของกริยาที่เติมท้ายด้วย ing และทำหน้าที่เป็นคำนาม คำกริยาต่อไปนี้จะต้องตามด้วย gerund เสมอ เช่น anticipate, avoid, envision, quit, enjoy, delay, facilitate, postpone, resume เป็นต้น

ส่วนคำ infinitive มันเป็นรูปแบบของกริยาที่มี to อยู่ข้างหน้า สามารถทำหน้าที่ได้หลายอย่าง เช่น เป็นประธานและเป็นกรรม อยู่หลังคำคุณศัพท์และหลังคำนาม และอยู่ในตำแหน่งเป็นกริยาวิเศษ ตลอดจนคำพูดที่แสดงออกพิเศษต่าง ๆ

3) อนุประโยควิเศษ อนุประโยควิเศษใช้เพื่อบ่งชี้ความสัมพันธ์กับประโยคหลัก ซึ่งมีความสัมพันธ์ในลักษณะต่าง ๆ ต่อไปนี้ สาเหตุ ความยินยอม วัตถุประสงค์ ขนาดความมากน้อย ความตรงกันข้าม และผล

4) อนุประโยคเงื่อนไข ในบรรดาคำหรือวลีต่าง ๆ ที่นำหน้าอนุประโยคเงื่อนไขมีอาทิเช่น even if, if only, whether ... or not, whether ... or, unless, และ as if. อนุประโยคเงื่อนไขสามารถปรากฏในรูปแบบต่าง ๆ เช่น เงื่อนไขที่เป็นจริง เงื่อนไขปัจจุบันที่ตรงข้ามกับความจริง เงื่อนไขในอดีตที่ตรงข้ามกับความจริง และเงื่อนไขที่ตรงข้ามกับความจริงที่กาลเวลาผสมกัน

- 5) อนุประโยคที่ทำหน้าที่เป็นคำนาม อนุประโยคชนิดนี้สามารถใช้ที่ไหนก็ได้ที่คำนามนำได้ เช่น เป็นประธาน เป็นกรรมของกริยา หรือเป็นกรรมของบุพบทก็ได้ ตัวอย่างเช่น  
ทำไมพี่น้องทั้งสองมีความโหดร้ายเช่นนั้นไม่มีใครทราบได้  
ผมอยากทราบว่าเรื่องนี้เกิดขึ้นที่ไหน เขาไม่รู้สักงวลเกี่ยวกับว่าพี่น้องของเขาต่อต้านเขา
- 6) รูปแบบของกริยาที่ไม่เปลี่ยนแปลง ในอนุประโยคที่เป็นคำนาม หลังคำต่อไปนี้คำกริยาในประโยครองจะใช้คำช่องที่ 1 เสมอ อันนี้เราเรียกว่า รูปแบบของกริยาที่ไม่เปลี่ยนแปลง คำกริยาที่อาศัยรูปแบบของกริยาที่ไม่เปลี่ยนแปลงในประโยครอง มีอาทิเช่น demand, insist, prefer, suggest, advise, request, require, และ urge.

**คำสำคัญ:** ไวยากรณ์ขั้นสูง, นักศึกษาระดับสูง

This study was mainly designed to investigate the advanced English grammar that advanced student can put in use in their writing various research articles or academic articles. The study was qualitative in character. The needed data were derived from participant observations and related documents. The collected data were analyzed by means of descriptive analysis.

As a result of the data analysis, the researcher discovered many rules of advanced English grammar. These rules of advanced English grammar were specified below.

### **Adjective Formation**

The ways in which adjectives may be for used are several. In terms of participial adjective forms, both the present participle and the past participle can be used as adjectives.

#### **Example**

The annoying child was disciplined.

The annoyed teacher disciplined the child.

There are countless expressions (many of which are idiomatic) that contain present or past participle. Some examples are shown below.

#### **Present Participle as Adjective**

a compelling reason

a governing factor

a booming economy

a penetrating question

a stirring speech

**Part participle as Adjective**

- a banned book
- a recognized authority
- a revised edition
- an embittered person
- a desired effect

Furthermore, adjectives can be formed with many different suffixes, which are added to verbs, nouns, and word roots.

**Suffixes**

- able
- ible
- al
- ant
- ent
- ary
- ful
- ic
- ish
- ive
- less
- like
- ous
- some
- y

**Word Example**

- agreeable, payable
- edible, feasible
- brutal, spiritual
- defiant, pursuant
- dependent, excellent
- contrary, culinary
- faithful, fearful
- artistic, historic
- childish, stylish
- aggressive, creative
- guiltless, loveless
- childlike, warlike
- anxious, glorious
- awesome, worrisome
- sticky, wealthy

**Gerunds****Gerunds and Infinitive**

A gerund is a verb form ending in -ing that functions as a noun.

**1. The Gerund in Subject Position****Example**

Obtaining a college degree is the goal of the majority of high school graduates.

Swimming is a good exercise.

## 2. The Gerund in Object Position

A gerund can be the object of a verb. The verb form used after the following verbs is the gerund:

anticipate	envison
appreciate	facilitate
avoid	finish
can't help	keep
consider	resent
delay	quit
dislike	resist
enjoy	risk

### Examples

The teacher recommended studying hard.

Some student avoided taking a course in mathematics.

A gerund can be the object of a preposition.

### Examples

A diploma saves the employer the cost of screening candidates.

Some students object to being judged entirely on the basis of their test scores.

## Infinitive

An infinitive is a verb form (to plus the base form) that can be used in the following ways: in subject and object positions, after adjectives and nouns, in adverbial position (to express purpose) and in special expressions.

### 1. The Infinitive in Subject Position

#### 1.1 The Infinitive in Initial Position

Examples:

To get a good education is desired by most of the young people of today.

To err is human, to forgive divine.

#### 1.2 Displacement of the Infinitive by the “empty it”

Examples:

It is the goal of most students to get high grades.

It is essential for Smith to study.

## 2. The infinitive in Object Position

The infinitive is used in numerous patterns as object of the verb.

### 2.1 Verb + Infinitive

The verb form used after the following verbs is the infinitive.

afford	claim	plead
aim	determine	pray
agree	hesitate	seem
appear	hope	tend
arrange	intend	threaten

Examples:

He decided to work for an advanced degree.

He can't afford to buy a new car.

### 2.2 Verb + Objective + Infinitive

The following verbs (when they are used in the active voice) must be followed by an object plus infinitive. If they are used in the passive, they are followed only by the infinitive.

advice	encourage	convince
allow	motivate	permit
authorize	caution	persuade
cause	challenge	remind
enable	command	urge

### 2.3 Verb + Infinitive; Verb + Gerund

Following are some of the verbs after which both the infinitive and the gerund can be used.

being	love
continue	prefer
hate	start
like	try

Example:

The student will continue to study/studying for 3 more years.

### 3. Infinitives Used after Adjectives and Nouns

Examples:

Perhaps college doesn't make people intelligent, ambitious or quick to learn things.

He was given **permission to take** extra courses.

#### Adverbial Clauses

Adverbial clauses are subordinate clauses that indicate the following relationships to the main clause: time, cause, concession, purpose, degree, contrast, condition and result.

Adverbial Clauses Expressing		
Time	<b>Words</b> when wherever while as before after	<b>Phrases</b> as soon as by the time (that) as long as  I avoid that neighborhood <b>wherever</b> I can during the winter months.
cause	<b>Words</b> because since as	<b>Phrases</b> in view of the fact that on account of the fact that as a result of the fact that as long as so long as  <u>Since</u> he lacked time, money, and confidence, he decided not to do any research.
Concession	<b>Words</b> Although Even though though	<b>Phrases</b> In spite of the fact Despite the fact that Regardless of the fact that  <u>Although</u> he tried hard, he couldn't conquer his phobia by himself.

<b>Adverbial Clauses Expressing</b>	
Degree/Extent	Phrases - to the extent that - to the degree that - insofar as He was cured <b>to the extent that</b> he could cross most bridges.
Purpose	Phrases - so that - in order that His parents consulted a psychiatrist <b>so that their son could be cured of his phobia.</b>

## Conditional Clauses

### 1. The Real Condition

#### 1.1 The Real Conditions – Past and Present

In the real condition, the main clause expresses something that is possible, likely, or factual (not hypothetical).

Examples:

If technology advances cause problems, there are always some who think of returning to simpler ways of living.

If a person lived before 1920, he experienced only a few of the electronic technological advances.

#### 1.2 the Real Condition – Future

In this kind of conditional sentence, the present tense is used in the subordinate clause and the future tense is used in the main clause.

**Patten**

Subordinate Clause (Condition)	Main Clause (Result)
If + subject + present tense	Subject+      will+      base form of verb may might can could had better must has to should be going to
Example If a person tries to go back to the simple life, If there is a shortage of gasoline,	that person will have a difficult time of it.  will other kinds of fuel be developed?

**2. Wish**

Examples:

	Fact	Wish
Present	- Do you <b>have</b> any interest in science? - Some military planners want to use lasers in warfare.	- No, I wish I <b>had</b> more interest in science. - Most people wish military planners <b>didn't want</b> to use these weapons in warfare.
Future	Robots <b>will take</b> the jobs of many workers.	These workers wish robots <b>wouldn't take</b> their jobs.
Past	Soap companies <b>added</b> phosphates to their products.	These communities wished the manufacturers <b>hadn't added</b> phosphates to soap powders.

**Note That**

1. Both is and are change to were after wish.
2. The verb wish can be used in any tense (wish, wished)
3. The following auxiliaries change after wish :
  - will = would
  - can = could, were able to
  - could = could have, had been able to
4. The following auxiliaries are not used after wish: should, had better, may, might, would rather, must. (For must of necessity, use had to after wish.)
5. in spoken English, short answers are very common after wish.

**3. The Present Contrary – to – Fact Condition****3.1 The Unreal Condition**

The contrary-to-fact (unreal) condition expresses a hypothetical idea. We use the present-to-fact condition when we want to express the idea that if something were true (but it isn't), something else would happen.

Subordinate clause (conditions)	Main Clause (Result)
If + subject + past form of the verb (For the verb <b>be</b> , use <b>were</b> for all persons)	Subject + would + base could form might should

Examples:

		Result
Fact	Computers, lasers, and robots exist.	Manufacturing is effective
condition	If computer, lasers and robots <u>didn't exist</u> ,	manufacturing wouldn't be so effective.
Fact	People are not like robots.	They have physical needs.
condition	If people were like robots,	they wouldn't have physical needs.

### 3.2 Variation in the Conditional Sentence Patterns

There are variations to the pattern commonly used in the present contrary-to-fact condition.

Examples:

Were Robert not a scientist, he might not have such faith in technology. (If Robert were not a scientist)

#### 4. The Past Contrary-to-Fact- Condition

##### The Condition Sentence Pattern

We use the past contrary-to-fact condition when we want to express the idea that if something had been true (but it wasn't), something else would have happened.

		Result
Fact	Some of the dangerous chemicals <b>seeped</b> into the water supply.	People developed illnesses, and the rate of birth defects <u>rose</u> .
Condition	If some of the dangerous chemicals hadn't seeped into the water supply.	People <u>would not have developed</u> illnesses and the rate of birth defeats wouldn't have risen so rapidly.

#### Noun Clauses

A noun clause may be used anywhere a noun is used: as subject, as direct object, or as object of a preposition.

##### 1. Noun clauses in Object Position

###### 1.1 When the Main Verb Is Present or Future

###### 1.1.1 Word Order

subject + verb + object

Examples:

The King learns **how the elder brother had betrayed the Prince**.

###### 1.1.2 Beginning with if or whether or not

Examples:

Because he is trusting, he doesn't worry about **whether or not his brother are against him.**

### 1.1.3 After Certain Verbs

After many verbs like say, believe, think, decide and claim, noun clauses are introduced by **that or the fact that.**

Examples:

They believe **that the youngest brother will triumph.**

## 2. Noun Clauses in Subject Position

### 2.1 Basic Characteristics of Noun Clauses in Subject Position

#### 2.1.1 Word Order and Introductory Words

Following are words that introduce noun clauses in subject position.

Who	How
What	how often/ long/ far, and so on
Where	how much/how many
When	Whether (or not)
Why	
Whose	That
Which + noun	The fact that

#### 2.1.2 Whether and That

“If” cannot be used to introduce a noun clause in subject position.

“Whether” must be used. Also notice that the word “that” cannot be omitted.

Examples:

**Whether (or not) the brothers would be released** depended on the generosity of the younger brother.

**The fact that the young Prince fell asleep** allowed his brothers to steal the Water.

### 2.2 Gerunds, Infinitives, and the Uninflected Form After Subject-Position Noun Clause

#### 2.2.1 Verb or Preposition Requiring Gerund

Example:

What the young Prince dreamed of was **seeing** his beloved again.

#### 2.2.2 Verb Requiring Infinitive

Example:

What the King wanted to do was to punish the two older brothers.

### 3. Noun Clauses After the “Empty It” And After Such Words As Belief and Hope

#### 3.1 Noun Clauses and the “Empty It”

Noun clauses are often used after nouns, adjectives, and verbs when the “empty it” is in the subject position.

Examples:

It’s a miracle that .....

It’s a wonder that .....

It’s obvious that .....

It’s clear that .....

It bothers him that .....

It amazes him that .....

#### 3.2 Noun Clauses After Certain Nouns

Noun clauses also occur immediately following nouns, especially such nouns as belief, hope, statement, prediction and warning. The noun clause after these nouns is called an appositive.

Example:

A philosopher’s statement **that the good are rewarded and the evil are punished** seems to hold true for fairy tales.

### The Uninflected Form

In noun clauses after such verbs as demand, suggest, or insist, the base form of the verb is used in the dependent clause. This is called the uninflected form.

#### 1. Verbs Requiring the Uninflected Form

demand	advise
insist	ask
suggest	desire
recommend	request

Examples:

A doctor **recommends** that the word cancer **be avoided**.

He **insisted** that he **be told** the truth.

## 2. Adjectives Requiring the Uninflected Form

advisable	vital
desirable	fitting
essential	important
imperative	necessary
urgent	

Examples:

The author feels it is **urgent** that cancer **be de-mythicized**.

Doctors in some countries consider it **necessary** that a patient **not learn** of his or her illness even though the patient's relatives are informed.

## 2. Nouns Requiring the Uninflected Form

advice	preference
insistence	request
desire	suggestion
necessity	proposal

Examples:

The **suggestion** that everyone **become** aware of the danger signals of cancer is a good one.

It was the **recommendation** of most doctors that a TB patient **spend** time in a different climate in order to recover.

## References

- Berry, Thomas Elliot. (1997). **The Most Common Mistakes in English Usage**. New York: McGraw-Hill Book Company.
- Chin, Peter et al. (2012). **Academic Writing Skills** . Singapore: Cambridge University Press.
- Dunham, Henrietta C. and Summers, Catherine Vaden. (1986). **English Integrated**. Glenview, Illinois: Scott, Foresman and Company.
- Ehrlich, Eugene and Musphy, Daniel. (1987). **English Grammar**. New York: McGraw-Hill Book Company.
- Swan, Michael. (2009). **Practical English Usage**. Oxford University Press.

## COMPOSING THE “BANGKOKTHONBURI MAHORI SUITE” FOR STRING ENSEMBLE

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### Abstract

Objectives of the research were: 1. To study the character of mahori suite, 2 to compose the new piece “Bangkokthonburi Mahori Suite” for string ensemble. The method of research was a qualitative research in kind of creative work. The researcher studied on mahori music traits and mahori ensemble for creating the new piece entitled “Bangkokthonburi Mahori Suite”. The research results were: 1. The suite (phleng tab) divided in to two types, the tab ruang and the tab phleng. Tab ruang focused on the story of song text and the melody varies but tab phleng focused on the melodic line and all pieces must perform in the same tempo and in the same key. 2. The new composition “Bangkokthonburi Mahori Suite” consisted of four small pieces (movement), pretipkio, phaew rasami, amata norati and thawiwatm each piece contained song text in lyrical form and the song text presented meaning that can refer to the Bangkokthonburi University motto.

**Keywords :** Mahori suite, Thai ensemble, String ensemble

### Introduction

Bangkokthonburi is one of outstanding university; it is the largest university on Westside of Krungthep Metropolitan, it being champion of “Thailand University Game” for three years continuously. The BTU offers bachelor’s degree and graduate level, a mastered degree and doctorate degree for Thai and international students. The university offering education in 15 faculties, 53 curriculums, including Faculty of Music,

Researchers interested in composing the mahori musical suite entitled “Bangkokthonburi Mahori Suite” for Bangkokthonburi University because they are appreciated in the university’s motto, the color of university as BTU symbol. In order

to do so, researchers must work on further study the BTU's philosophy and its motto to understand the aim, educational attitude and university's spiritual for using this idea to inspire composer to compose the new piece. Beyond that, researcher study the mahori musical traits and also mahori ensemble.

According to the study of all knowledge said above, the researchers are interested in composing a musical suite for using as example of composing for students who take major in composition and the new musical mahori suite could be a representative of Bangkokthonburi University too.

### Objectives

1. To study the character of mahori suite
2. To compose the new piece "Bangkokthonburi Mahori Suite" for string ensemble.

### Literature Review

#### 1. Music genre, the suite

There are nine genres in Thai music category and the suite (*Phleng Tab*) in one of them. The suite is a series of music consisting of many pieces put together, normally has both vocal and musical part. *Pleng tab* is divided into two types, *tab phleng* (literally, song suite) and *tab ruang* (literally, story suite).

*Tab phleng* (songs suite): The melodic compositions were principal; this suite consists of many small pieces that has emphasized on two things:

- Every piece must be in the same key
- Every piece must be played in the same tempo

All pieces in a suite need to have the same tonic note and the same accent such as in *Khmer* accent, *mon* accent, etc., and in the same tempo such as in *sam-chan* (slow) or *sawng-chan* (medium). e.g. the *tab wiwa pra samuth* that has three pieces *khluen kratob fang*, *bang vai* and *khaek sarai* all are in *sawng-chan* and are having the same tonic note in Bb, if the *tang piang-aw* is played, the tonic note has the lowest pitch in *khlui piang-aw* (recorder). The *tab phleng* is not concentrated on the text or lyric for singing, so that sometimes the relics may be brought from different literature are not from the same tale but its principle is the melodies and the scale that has mentioned.

## 2. Types of Thai ensemble

There are many different types of Thai musical ensembles; at least two special ensembles and three standard ensembles are available in the Thai classical music viz., *khav mai* ensemble *khruang prakhom* ensemble, *khruang sai*, *piphat* ensemble and *mahori* orchestra. This research investigated only the standard type of ensembles which consists of *wong khruang-sai* (string), *wong pi-phat* (wind and percussion) and *wong mahori* (a combination of string, wind and percussion)

**Wong khruang-sai** (string ensemble) normally consists of *saw-duang*, *saw-ou*, *jakhe*, *khlui* and the set of percussion *ching*, *chab*, *tone-ramana* and *mong*. This ensemble is further divided into four kinds in accordance with its size and the different instruments; small string ensemble, double string ensemble and large string ensemble, mixed ensemble and pi-java string ensemble.

**Wong piphat** (piphat ensemble) It's being used since 13 century in Sukhothai period and has developed gradually especially in the Bangkok period. The piphat ensemble usually contains circle gong-sets, xylophones, double reed wind instrument, drums and percussion; it divides into seven kinds as following: *piphat-chatri* (a light weight piphat), *piphat-khruang-ha* (quintet), *piphat-khruang-khu* (double piphat), *piphat-khruang-yai* (large piphat), *piphat-nanghong* (funeral piphat), *piphat duegdamban* (a mellow deepen sound one) and *piphat-mon* (the piphat ensemble derive from Mon tradition)

**Wong Mahori** (Mahori ensemble): *Mahori* is the ensemble combining the string ensemble and the *Piphat* together with the *Piphat* instruments (*Ranad* and *Gong Wong*) reduced to a small size suitable to play with the strings by lady performers. During the early Bangkok period the *Mahori* Orchestra was played only in the Palace by the ladies. The *Mahori* was divided into three sizes: *Mahori wong lek*, *Mahori khruang khu* and *mahori khruang yai*

*Mahori wong lek*: A small size *Mahori* ensemble comprises of each of the following instruments: *Ranad ek*, *gong-wong-yai*, *saw-sam-sai*, *saw-duang*, *saw-ou*, *jakhe*, *ching*, a pair of *tone-ramana* and *krab phuang*

*Mahori Khruang khu*: It is a double melodic percussive instrument *Mahori* ensemble has the following instruments: one of *ranad ek*, *ranad thum*, *gong-wongyai*, *gong-wonglek*, 2 *saw-sam-sai* (regular one and *saw-sam-sai lib* with high register), 2 *saw-duang*, 2 *saw-ou*, 2 *jakhe* (regular one and *jakhe lib* with high

pitch), 2 *khloi* (*khloi piang-aw* and *khloi lip* four pitches higher), a couple of *klong khaek*, *ching* and *krab phuang*

Mahori Khruang Yai: This is the largest *Mahori* Orchestra consisting of four groups of instrument as followed:

#### 1. String Instrument

*Saw-duang*; not less than 2 fiddles but sometimes many *saw-duang* are used normally four fiddles are used. *saw-ou* not less than two but usually equal to *saw-duang* in the same performance.

*Jakhe*; 2 or 3 *jakhe*, one is normal *jakhe* and other is *jakhe lip*.

*Saw-sam-sai*; normally used two (regular one and the *lip* one) in having different timings and different sizes; one at high pitch and the other at low pitch.

These string instruments are usually played in a different style: one keeps the normal melody, based on the principle melody of the *gong-wong yai* but with different variation and the other would play a different variation from the first one with additional melodic decoration, also based on the principle melody of *gong-wong yai*.

#### 2. Percussive Instrument

*Gong-wongyai* (mahori) is two pitches higher than the piphat gong and it plays the basic melody as the base instrument of the orchestra.

*Gong-wonglek* plays variations based on the principal melody.

*Ranad ek* is the leader of the ensemble and plays the full melody of the principle gong player but with different variations from the *gong-wong-lek* and it has varied styles of playing.

*Ranad thum* is the joker of the orchestra and plays variations in different styles.

*Ranad ek hlek* plays like the *ranad-ek*.

*Ranad tum hlek* plays principal melody similar to *Khawng-wong-Yai*.

#### 3. Wind Instrument

*Khloi lip* plays a sweet melody at high pitch.

*Khloi piang-aw* plays a sweet melody in the alto having different style from the *khloi-lip*.

*Khloi-ou* plays the low register as a principle like the gong but having different variation.

#### 4. Rhythmic Percussion:

*Ching* is the conductor and controls the tempo in the patterns of *sam-chan*, *sawng-chan* and *chan-dio*.

*Chab lek* is used for decoration and interrupts the *ching* beat.

*Krab phuang* controls the strong beats on every two beats of *ching* in strong stroke.

*Mong rao* is a three different sizes gong sets for controlling the beat played after every four strong *ching* beats.

*Klong khaek* (couple) one in high and the other in low pitch, it plays the *nathab* (rhythmic pattern in cycle) to control the tempo. This is very important percussive instrument for measuring the melody in any tempo.

The *Mahori* orchestra consists of 19 performers using percussion of the orchestra to make different sounds with different pieces which includes *klong chatri*, *klong yao*, *klong took*, and any percussion included in order to play intonations in foreign accents. The *taphone* and *klong Tad* may be used for *naphat* music and the plan of the Mahori Orchestra is usually as depicted in figure shown below.

The *gong-wong yai mahori* and *ranad mahori* are not essentially needed to accompany in an ensemble but the normal *gong-wong* and normal *ranad* are used by performers and so the *Mahori* Orchestra could present every pieces due to its high level of performing technique.

A special ensemble can create for special situation or special events that are not suitable to use standard ensemble and could includes any instruments that fit in the ensemble which are able to produce nice sound of music. (Roongruang, 2015)

## Research Methodology

Research methodology is “creative research” consists of two parts, the research part, and the creative part. The research part is qualitative research studying the “philosophical motto” and perspective on educational management of Bangkokthonburi University. The creative part is to compose a new piece entitles “Bangkokthonburi Suite” to be performed by Thai ensemble. The following are working steps of this research:

1. Studying the “philosophical motto” and perspective on educational management of Bangkokthonburi University.
2. Study music literature and composition for writing the new composition.

3. Composing the lyric (song text) for the new pieces “Bangkokthonburi Mahori Suite”.
4. Composing the melody of the new pieces “Bangkokthonburi Mahori Suite”.
5. Having experts to investigate the new composition.
6. Revising the new music follow the expertise’s suggestion
7. Presenting the new composition for international conference

## Results

### Part 1 The study of *phleng tab* (suite)

The character of mahori suite: Mahori is one of Thai music genre among nine of them, mahori divides into two types; the story suite (*tab ruang*) in which a suite contains song text that tell the story and the melodic part could varies; the melodic suite (*tab phleng*) in which the suite contains many melodically pieces with no song text, the music must be in the same tempo and in the same scale. The mahori ensemble divides into three types; *mahori wong lek* (small size), *mahori khruang khu* (double mahori) and *mahori khruang yai* (large mahori). The main instruments are string instrument, wind instrument (flute) and melodic percussion, gong, and xylophones. Bangkokthonburi Mahori Suite is a *tab phleng* types consists of four pieces; *pretipkio*, *phaew rasami*, *amata norati* and *thawiwat* which are in the same tempo of *song-chan* (moderato)

### Part 2 Composition

This part has two sections, the song text and the music notation.

## 2.1 Song text

### Bangkokthonburi Mahori Suite

#### Movement 1: Pratipkio (ประทีปแก้ว, crystal lantern)

การศึกษา พัฒนา มนุษย์	สุวิสุทธิ ปัญญา กล้าแข็ง
Kan skueksa pathana manut	suwisut panya klaa khaeng
(Education develops people	clear minded, strongly intellectual)
ก้าวหน้า นำสังคม เปลี่ยนแปลง	กรุงเทพมหานครบุรี กล้าแกร่ง แข่งดี
Kaona nam sangkhom plian plaeng	krungthepthonburi kla kraeng khaeng di
(An advanced leader of social change	krungthepthonburi is a strong competitor)
สีแดงทอง ผ่องประภาส พิลาสลักขันธ์	เจ็ดประจักษ์ ทองอุไร มงคลศรี
Si daeng thong phong prapat philat luk	Joed prajak thong urai mongkol sri,

(The red and goal shine bright in the sky well recognized the auspicious thong-urai tree,)  
 ดุจประทีป แสงแก้ว แวมณี นำวิถี ถิ่นไทย สถาพร  
 Dut pratip saeng kaew waew mani nam withi thin thai stawon  
 (As like as a bright shining crystal gives leading light to the long lasting Thailand)

**Movement 2: Phaew Rasami (แพรวรัศมี, brilliance radius)**

สถาผล ประดนตรี ขนบมัน ครูอาจารย์ สักดกลิ่น การเรียนสอน  
 Satha phon pardon krob khanob man Khru ajan klan sakad kaan rian sawn  
 (Makes stability result of learning and custom Instructors teach student from their deepen heart,)  
 เปิดโอกาส โลกกว้าง อย่างอาทร รัศมี แพรวอัมพร ขจรไกล  
 Poed o-kard lok kwang yang tha won rasami praw amporn kajon klai  
 (Gives chances and opens world with care, the bright radius shines farther in the sky)

**Movement 3: Amata Norathi (อมตะนรธีร์, Immortal Noble mam)**

วิริยะ อมตะ นรธีร์ มีความรู้ คู่ความดี ศรีวิสัย  
 Wiriya amata norati me kwam ru khu kwam di sriwisai  
 (Diligent Immortal Noble man with knowledge and goodness, civilized one)  
 เปื้องวิชา เชี่ยวชาญ ทุกกาลไป คือธงชัย เด่นชัด ที่จัดแจง  
 proeng wicha chieo chan tuk kan pai kue thong chai den chat ti jad jaeng  
 (expert in all knowledge at any time that is a victory flag of work)

**Movement 4: Tawiwat (ทวิวัฒน์, Long lasting)**

แขวงแห่งศรี นามแห่งศรี ทวิวัฒน์ เจิดจรัส จำเริญ รุ่งแสง  
 Kwaeng haeng sin am hjaeng si tawiwat joed jamrus jamroen rungsaeng  
 (A good place, a good name of thawiwat out standing, good outcome brightly )  
 ทวิวัฒนา มงคลนาม ฤทธิแรง มโนแจ่ง จิตจำรุง เจริญเทอญ  
 Tawi wathatana mongkol maan rithiraeng mano jaeng jit jumrung jaroen toen  
 (Powerful tawi wathatana auspicious name its insight, in mind and highly grow)





ลท	รท	รล	ช - - ล	- - - ท	- ร ท	ช - ม - ร	- - - ร
--- เปรื่อง	--- วิชา	--- เชี่ยวชาญ	--- ชาญ	--- -	--- -	- ทุก- กาศ	--- ไป

- - - ร	- - ร ร	- - - ลท	- - - รท	- - - -	- - - ร	- ร - ช	- ล - ทลช
- - - คือ	- - ธิงชัย	- - - เต้น	- - - ชัด	- - - -	- - - -	- ที่ - จัด	- แจง - -

Movement 4: Tawiwat (ทวิวัฒน์, Long lasting)

- - - -	- - - ช	- - - ล	ชลช - ช	- - - รช	- - ท ร	ช- - - ช	ม - ม - ช
- - - -	- - - -	- - - -	- - - -	- - - แหวง	- - แห่ง ศรี	- - - นาม	- - แห่ง ศรี

- - - ด	- - -	ลช - - ล	ทลรท - ท	- - - รท	ลทล - ท	ล ช - - ทท	ร ล - -
ช	ท						
- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - ทวิ	วิวัฒน์- - -

- - - ช	- - - ล ช	- ลทล - -	- - ร ร	- - ล ฟ	มฟม - ฟ	มร - - ล	รมฟ - ฟ
- - - เจ็ด	- - - จำรัส	- - - -	- - - จำรูญ	- - - -	- - - -	- - - รุ่ง	- - - แสง

- - - ล ม	- - - -	- - ช ช	- ล ช ช	- - - ช	- ล ช ท	ร - ท ท	- - - ท
- - - -	- - - -	- - ทวิ	- - วิวัฒนา	- - - -	- - - -	- - มงคล	- - - นาม
- - - ช	- - - ล	ทล - - ท	- - - ร	- - ล ฟ	มฟม - ฟ	มร - - ฟ	ม ม - -
- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - ฤทธิ	ธิแรง - -
- - ช ช	- - ช ม	- - - ม	- - ช ช	ชลช - -	- - ล ล	- - - ล	- ท ล ช
- - มโน	- - - แจ้	- - - จิต	- - - จำรุง	- - - -	- - - เจริญ	- - - เทอญ	- - - -

## 2.2 Instrumental score

Thai notation: available only a generic version of the large circle-gong-set

### Gong-wong-yai

#### Movement 1: Pratipkio (ประทีปแก้ว, crystal lantern)

##### Section 1

- - - -	- - - ร	- - - ม	- ร ร ร	- ช - ม	- ร - ท	- ล ร ร	- ม - ช
- - - ม	- ร - ช	ช ช - ล	ล ล - ท	- ร - ท	- ล - ช	- - ล ท	- ร - ล
- - - ท	- - - ล	- - ท ล	- ท ท ท	- ท ท ท	- ร - ล	- - ท ล	- ท ท ท
- - - ท	- - - ล	- - ท ล	- ท ท ท	- ร - ช	- ล - ท	- ร - ท	- ล - ช

Repeat

##### Section 2

- - - -	- - - ช	- - - ล	- ช ช ช	- ด - ล	- ช - ด	ด ด - ร	ร ร - ม
- - - ช	- ล - ด	ด ด - ร	ร ร - ม	- ช - ม	- ร - ช	- ล - ช	- ม - ร
- - - -	- ด - ล	- - ด ล	- ด ด ด	- - - -	- ร - ด	- - ร ด	- ร ร ร
- - ร ด	- ร ร ร	- - ม ร	- ม ม ม	- ช - ด	- ร - ม	- ช - ม	- ร - ด

Repeat

#### Movement 2: Phaew Rasami (แพ้วรัศมี, brilliance radius)

- - - -	- - - ด	- - - ร	- ด ด ด	- ช - ม	- ร - ช	- ล - ช	- ม - ร
- ล - ช	ช ช - ล	ล ล - ด	ด ด - ร	- ช - ด	- ด ร ม	- ร - ม	- พ - ช
- - - -	- - - พ	- - - -	- พ - พ	- - - ช	- - - ด	- ด ร ม	- ร - ม
- ช - ม	- ร - ด	ด ด - ร	ร ร - ม	- ช - ด	- ด ร ม	- ช - ม	- ร - ด
- - ม ร	- ม ม ม	- - ช ม	- ช ช ช	- - ด ล	- ด ด ด	- - ร ด	- ร ร ร
- ช - ม	- ร - ช	- ล - ช	- ม - ร	- ช - ล	- ช - ม	ม ม - ร	ร ร - ด

Repeat

#### Movement 3: Amata Norathi (อมตะนรธีร์, Immortal Noble mam)

- - - -	- - - ล	- - - ด	- ล ล	- ท - ร	- ท	ล ล	ช ช
- - - -	- ร	- - ล - ช	ช ช	- - ด - ล	- ช	ด ด	ร ร
- - - -	ม	ล	ล	ด	ด	ร	ม
- - - -	- ม	- - ด - ล	- ช - ม	- ม ม ม	- ช - ด	ด ด	ร ร
- - - -	ร	ล	ล	ร	ร	ม	ม
- ท ท	- ร	- - ม - -	พ ช ล - ด	- พ ช	- - ด	- - ด	ร ร
ท	ช		ล	ล	ร	ร	ด
- - - ร	- - -	- - ร - ล	- ล	- - - ท	- - - ร	- ช - ร	- ร
- - - -	ท	ล	ล	ม	ร	ร	ร
- - - -	- ม - ร	- - - ท	- ท ท ท	- ล ล ล	- ท - ร	- ท - ล	ล ล - ช

## Repeat

## Movement 4: Tawiwat (ทิวทัศน์, Long lasting developed)

- - - -	- - - ชู	- - - ล	- ชู ชู ชู	- ท - ล	- ชู - ร	- ท ม ม	- ร - ชู
- ร - ชู	- ชู ล ท	- ล - ร	- ท ท ท	- ร - ท	- ล - ชู	- ล - ท	ท ท - ล
- ล - ชู	ชู ชู - ล	ล ล - ท	ท ท - ร	- ล - พ	- พ ม ร	- ร ม พ	- ล - ม
- ชู ชู ชู	- ชู ชู ชู	- ชู - ล	ล ล - ชู	- ร - ชู	- - ล ท	- ล - ร	- ท ท ท
- ล - ชู	ชู ชู - ล	ล ล - ท	ท ท - ร	- ล - พ	- พ ม ร	- ร ม พ	- ล - ม
- ชู ชู ชู	- ชู ชู ชู	- ชู - ล	ล ล - ชู	- ร - ชู	- - ล ท	- ร - ท	- ล - ชู

## Utilization of Research Result

1. Having musical score and parts of the new music “Bangkokthonburi Mahori Suite” for Bangkokthonburi University used.
2. Performing new music for public, live, and internet or in the conference if any.
3. Having examples of studying international music to use for composing Thai composition to be performed by Thai string ensemble

## Discussions

Creative research is met with Thailand 4.0 policy, it's a kind of value added on top of ordinary research which is come up with the pure knowledge as a research result. But the creative research produces new creative work such as new compositions or songs that are able to give new creative ideas for listeners, encourages and inspires listener for further thinking in order to produce some new works.

The composition “Bangkokthonburi Mahori Suite” in this research is a combination of Thai and Western music knowledge but not concentrate much on western musical harmony but making it as easy listening music, so that the researcher never uses complex chords, but principle one and using a simple binary form.

One important point of the songs is depicting and portraying the Bangkokthonburi University's philosophical motto, identity, and university's spiritual.

Suggestion for this research; it is able to arrange the composition in other type of ensemble for easier performance such as big band, string band even brass band. Suggestion for further research is to compose new music bases on a single different of each Faculty.

### Reference

- Roongruang, Panya. 2015. **Thai Music in Sound** (ดนตรีไทยประกอบเสียง, dontri Thai prakob siang). Asom Samgkeet, Nonthaburi.
- Roongruang, Panya. (2561). **Kaan-wijai-sangsan-thang-dontri-lae-nata-sin-Thai (การวิจัยสร้างสรรค์ทางดนตรีและนาฏศิลป์ไทย)**. Document for music conference, Music Educators Association (Thailand).
- Sadie, Stanley. (1980). **The New Grove Dictionary of Music and Musicians**, 1st edition. London: Macmillan Publishers Limited.
- \_\_\_\_\_. (2001). **The New Grove Dictionary of Music and Musicians**, 2nd edition. London: Macmillan Publishers Limited, 2001

## CREATING THE SONGS FROM EMERGING EMOTION OF INFECTIOUS DISEASES

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### Abstract

This research is a creative work in Ethnomusicology. The researcher conducted the research through document studies and fieldwork. Its purpose is to study emerging emotion of infectious diseases to create new music for Trio. It operates according to the procedure, which is to study and collect data. Determining the scope of music composition Concept of composition, melody and music structure.

The research results consisted of 2 Pieces: (1) MY VOICE and (2) A WAITING, Composition principles consist of (1) using a tonality system (2) the tempo set at 76 and 96 bpm. (3) the using 8 techniques of music composition being retrograde technique, chance music technique, current music technique, repetition technique, pizzicato technique, melodic Variation technique, imitation technique and arpeggio technique.

**Keywords:** Creating, Emotion, Emerging Infectious Diseases

**Type of Creative work / Field** Music

### Introduction

The Emerging Infectious Diseases crisis in Thailand echoes the effects of the novel coronavirus epidemic. The Ministry of Public Health of Thailand has confirmed that a patient with a test result confirmed that has been infected with the novel coronavirus since January 2020. Look into the source of the epidemic, it was found that the world knew and discovered the virus at the end of 2019 in Wuhan, China and began to spread rapidly in many areas of China. The Chinese government is trying to search and control the area to reduce the spread of the virus. but not as effective as it should be because it is a new strain of virus that does not have a drug or vaccine to treat it. (Saengwongdee. P., 2020) Although many countries are starting to be alert and pay attention to the prevention of the new coronavirus epidemic. But the protection is still stuck and not

smooth. Until causing the epidemic to spread widely around the world as a result, the Prime Minister of Thailand wants to declare a state of emergency following the Emergency Decree on Public Administration 2005 to control the epidemic. By allowing the said Royal Decree to be effective throughout the Kingdom Since March 26, 2020, the aforementioned law has stipulated (No. (1) For people to follow, consisting of 1) Prohibition of entering risk areas by giving the power of the provincial governor to issue an order which is considered to be a communicable disease control officer (2) Close the place that sounds like a contagious disease such as a boxing stadium, a playground, a service place, a tourist attraction, a restaurant, a museum, a market, a library, etc. (3) Close the channel The way to travel into the Kingdom whether by ship, by air, by land; (4) No hoarding of goods; (5) No assembly or activity; in crowded places 6) Prohibit the presentation of news that is untrue and may cause fear to the public (Deod. P., 2020).

Emerging disease crisis caused by the new coronavirus causing impacts in many areas, including economic, social, education, foreign affairs in tourism and etc. The said impact has covered all areas, every occupation, including the people of the country. It can be considered a crisis for mankind. Therefore the researcher became interested and thought that create a song to tell a story and reflect on the emergence of an emerging disease crisis will serve as a medium to keep records of events for future learning.

From such problems, researchers have their opinions on the impact of the novel coronavirus epidemic. The researcher noted that the while crisis. This causes people in Thailand to experience stress, pressure, and despair in their daily lives. Causing some people to choose to end their lives with this crisis because of the crisis in this situation, the researchers found that there were many different artists and various genres of music. They came together to support each other through music by composing songs or style. To be beneficial and encouraging to those affected by the epidemic of the new coronavirus. However, the researcher would like to be a part of encouraging through music from the creation of songs expressing feelings in the emerging disease crisis by conveying feelings, concern and wanting to encourage. For people affected by the crisis through a trio consisting of singers, pianos and cellos in a modern music form.

### **Objectives**

1. To describe emotion in an emerging disease crisis
2. To create a song that reflects the feelings of the emerging disease crisis

## Literature Review

Ethnomusicology is a science used to study the behavior of human music, which Rungrueng. P. (2006: 5) Chonpairot. J. (1983: 9) and Nakrab. S. (2014: 1) explain that “Manusduriyanggawittaya” Formed by mixing two words, namely ethnic group or ethnic group and Musicology. Music is a culture that has been created by humans. For using in life from the study of the “Mahoriwijak” Documents of Arunrat.P. (2011: 18) and from the Sangkhetism Documents. Suttajit. N.'s appreciation of western music (2012: 70) can be concluded that music can have two meanings, divided into artistic implications (feelings) and scientific implications (reality), that is, if you look at the word "music" with an artistic connotation, it means Human-made sound art to meet the needs of life. Music can be used to communicate and be a tool to represent the identity of the people. If you look at music with a scientific connotation music is a sonic art that is closely related to sound and time.

Phancharoen. N. (2017: 7-110) describes the approach for systematic music analysis. The analyzer must study the songs according to the issues in the analysis in 4 aspects: (1) Range (2) Interval Disjunction Motion (3) Direction (4) Relationship of direction and Thambutr. N. (2009: 125-152) gave a meaning about the keyless system (Atonality) and the approach used in contemporary music composing. (Contemporary music composition) that is a sound management system that does not focus on any one sound. This contrasts with the Tonality-based system, where unkeyed music uses all 12 notes of the Chromatic Scale equally.

## Conceptual Framework of Creative work

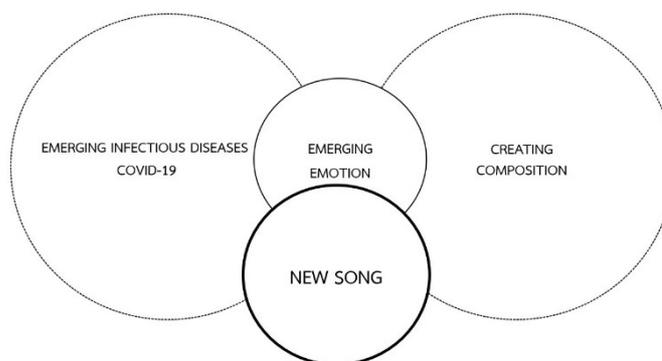


Figure 1 Research conceptual framework

## Creative Methodology

Researcher describe suffering from emerging disease crises which is an echo caused by the impact of the epidemic of the new coronavirus. As a result, the daily life of everyone in the world has completely changed in all aspects such as economy, occupation, education, travel, communication. The invention of new technology to accommodate the crisis that arises and include more self-care behaviors also (Department of Mental Health, 2020: 8-9) through various processes of the principles of modern music composition. The composition will be conveyed in the style of modern music. Both tangible and abstract with the symbolic related to musical materials and context describing feelings through music with the method of composing modern music that according to Western music theory many things for the transmission of quality work.

In addition, the study of documents "The impact of the novel coronavirus epidemic" surveyed by Saowaluck Kittipraphat and colleagues found that there were two large groups with stress-related problems. Because most of them borrow money outside the system unable to postpone debt, therefore, have high-stress levels which may be borrowed from relatives. Some people owe for house to rent. They don't have money to pay have to move out or to find a new place to live. Someone lives in a temple, sleep or be homeless. Some people have enough money to help and compensation must be used for debt first. The rest is used for family expenses and the second group has no debt problems. But there is a problem of unemployment, time off, and lack of income (Kittipraphat. S. et al., 2020: 70). And tell the atmosphere, story, behavior, thoughts, feelings, and despair from waiting for the situation to return to normal soon in such a crisis composing this song. It is the transmission of feelings through music. It is divided into 2 songs, consisting of the first song. It describes the feeling of despair from the crisis that has yet to see a solution or the end of this emerging disease. The researchers presented the main melody for sadness by creating a melody for the instrument to be responsible for the melody and presenting the lyrics following the melody of the music using Western music theory to apply and manipulate. To be as complete as possible, the second song, the researcher wanted to describe the waiting, the joy, the fun, and the wait for the time to meet again. According to create the main melody and to create a chord to give the atmosphere and feeling of the song by the model and identity of the researcher.

## Creative work

### 1. Main Idea of composing

Music composition which the researchers studied and analyzed to find the melody that is relevant and consistent with the impact of the novel coronavirus epidemic. Following raw materials for composing songs by conveying feelings and narrating content through a trio. It consists of lead vocals, cello and piano. The structure and style of the music are unique according to the music content and story set as follows:

Process 1 "MY VOICE", The researchers describe the groan from the emerging disease crisis in Thailand as echoes caused by the effects of the novel coronavirus epidemic. As a result, the lifestyle and behavior of everyone in the world have changed. Benefits of music is one way to convey feelings, an idea and behavior during emerging disease crises that happened this time through the song using western music theory to help both composing the lyrics, melodies, chords and adding to the researcher's identity. All of which the researcher has conveyed through the metaphorical songs between the journey and the music through process 1;

Process 2 "A WAITING", The researcher describes waiting and reuniting in normal circumstances, both happiness and fun with the people around environment. Henry van Dyke (1852-1933), American writer and novelist. He described in the book *Music and Other Poems* (1904), the meanings and different perspectives of time which is defined by the feelings of people who are in a certain emotional trance. It is considered one of the famous poems. The researcher created a song to encourage and tell the emotions, stories, behaviors, thoughts, feelings of waiting for the situation to return to normal soon in the emerging disease crisis through process 2.

### 2. Design of composing

2.1 The form uses the style of modern music, that is a short, uncomplicated song, easy to listen, and has a flowing melody. The researcher designed the composer in the form of 2 songs.

2.2 Tuning System to makes music compositions suitable for all audiences and in accordance with the trend The researcher, therefore, chose to use a Tonality-based system based on the use of the Diatonic Scale, Major and Minor Scale.

2.3 Time Signature, using four normal marks (Fourth-Simple Time Signature) to create music colors according to the style of popular music.

2.4 Tempo by using the speed rate determined to be consistent with the music composition, such as following the music content. By the technique of playing and to suit the music content by setting the song slow and medium speed to cheer up. Therefore, a moderately slow verse speed rate of 76 Bpm was used. A moderately fast section speed rate was used at 96 Bpm.

### 3. Process of composing

3.1 Study the printed documents including the study of non-print documents and media to use the information obtained as a basis for information and guidelines for building an understanding of composition.

3.2 Study information about opinions and feelings through interviews. from occupation groups affected by the novel coronavirus epidemic.

3.3 Determining boundaries for composition to ensure that the operations are consistent and within the specified scope.

3.4 Define the instrument to be used in the composing process considering the relationship between instrumental technique and composition technique; to create consistency and be able to display the content clearly.

3.5 Determine the concepts and syntax in the composing process to be consistent with the content and the story to be conveyed.

3.6 Determine the melody and structure of the melody as a model for the formation and further development of the melody.

3.7 Composition, however this requires the use of composing techniques according to contemporary music composition methods. coupled with a combination of modern including consulting the Board

3.8 Consideration of songs as composers, musicians and listeners in order to apply the results to improve the quality of the songs in all aspects along with a detailed examination of the musical symbols and proofreading.

### 4. Explain the technique of composing music

Music composition is a song that reflects the effects of the epidemic of the new coronavirus. By conveying the atmosphere, stories, behaviors, thoughts, feelings of this crisis. The songs presented by the researcher. Storytelling from the situation of the world is embedded in the music as well, that is some melodies may use the same or similar musical materials as some countries. The composer is two songs: combining the principles of Western music theory with the researcher's identity through

a trio consisting of lead singers, cello and piano. The details of the composition of the song are as follows:

#### Song No. 1

"MY VOICE", the researcher wanted to explain their feelings from having to fight with problems that exist around such as the problem of the epidemic of the virus, the economy, travel, as well as the behavior of people in society that have to change to live in a new way (New Normal), which has an effect affected by this emerging disease crisis. The composition of this song is the conveying of thoughts and feelings through music that can be divided into 5 sub-paragraphs. The composition uses 4 techniques: Retrograde technique, Chance music, Current music, Repetition technique. Details are as follows:

- Beginning part (Introduction) Bar No. 1-8
- Part A, Bar No. 9-24
- Part B, Bar No. 25-35
- Part C, Bar No. 36-45
- Part D, Bar No. 46-58

For example, in the starting part in the bar no. 1-8, the composer uses a speed of 76 bpm. This speed is classified as a moderately slow speed. In accordance with the melody of despair, sadness, the instrument assigned by the researcher to the cello was responsible for conveying the melody in this beginning. The grammatical scale chosen by the composer is C Major and the A minor scale which is the relative scale.

The image shows a musical score for the beginning part of 'MY VOICE'. It consists of three systems of music. The first system (bars 1-4) is in 4/4 time with a tempo of 76 bpm. The top staff is a piano part with a melody of eighth notes, marked *mp*. The bottom staff is a cello part with a melody of eighth notes, marked *f*. The second system (bars 5-8) is also in 4/4 time with a tempo of 76 bpm. The top staff is a piano part with a melody of eighth notes, marked *p*. The bottom staff is a cello part with a melody of eighth notes, marked *mp*. The third system (bars 9-12) is in 4/4 time. The top staff is a piano part with a melody of eighth notes, marked *f*. The bottom staff is a cello part with a melody of eighth notes, marked *mp*.

Figure 2 The speed and the sound of the beginning part

For example, in the bar no. 6-8, 46-50, Phancharoen's reverse technique (2012: 102) is to rearrange the notes of the melody. starting from the last note go in chronological order until the first note. The rhythm may be preserved as much as possible.

The researcher has applied this concept by assigning the piano. Because of the piano sound and the appearance of the two-tiered notes that go back and forth, it can be called a charm and the characteristics of the piano. The researcher has used this technique many times in the songs through the main melody and the chorus.



**Figure 3** Retrograde technique

Example in the bar no. 9-13, musical trick for guessing Refers to the music that is destined to occur while playing. The composer places certain conditions on the song. And that allows musicians to have the freedom to play. both in terms of volume, rhythm characteristics, sound intensity to create a new type of sound In some rhythms, musicians have the opportunity to play harmonious sounds or sometimes to play biting sounds. The composer uses this technique as an alternative that gives musicians the freedom to choose how to play. The composer sets the main idea for the musicians. The most popular composer with this technique is Henry Kovel (Thambutr N., 2009).

The researcher has used the music technique for guessing. Let the piano instrument play. The researcher has assigned a chord. where musicians can create new melodies But the chorus with the notes forced the musicians to follow the researcher's notes. As the following example image.



Figure 4 Chance music technique

For example in the bar no. 46-54, limited current music techniques. It is a type of music that uses less material. such as repetitive use of notes or song sentences maximum effect This style of music is an experimental style of music that Western composers love to use as a raw material for their music creation. Phillip Glass is a well-known composer who enjoys writing songs in limited flow music The researcher got this idea from Philip Glass's "Evening Song" song.

The researcher has a limited presentation of music techniques. in the main melody of a piano instrument is to bring notes and the notes are arranged repeatedly Change some notes, but still maintain the same structure, the same form. The researcher wanted the music to be repeated. In order to meet the meaning of the song that the researcher has defined is want the music to be as strong as a soldier but played under other groups of notes. Because the researcher wants to present in this song No. 1 that the epidemic of the new virus is It originated from China. which corresponds to the use of the note section to represent China's military regime.



Figure 5 Current music technique

## Song No. 2

"A WAITING", the researcher describes the waiting. Reuniting in normal circumstances, both happiness and fun. with the people around The environment around Henry van Dyke (1852-1933), American writer and novelist. Described in the book Music and Other Poems (1904), it describes the meanings and different perspectives of time. which is defined by the feelings of people who are in a certain emotional trance It is considered one of the famous poems. The researcher created a song to encourage. and tell the emotions, stories, behaviors, thoughts, feelings of waiting for the situation to return to normal soon in the emerging disease crisis by the researcher Create a melody from the C Major scale, making the song bright, easy to listen to, and relaxing. It can be divided into 6 sub-paragraphs. The composition uses 4 techniques: Pizzicato Technique, Melodic Variation, Imitation Technique and Arpeggio technique are detailed as follows:

- Introduction Bar No. 1-10
- Part A, Bar No. 11-26
- Part B, Bar No. 27-35
- Section C, Bar No. 36-47
- Section D, Bar No. 48-68
- Part E, Bar No. 69-82

Example in the first section, Bar No. 1-10, the researcher wants to explain encouragement. and also hidden meaning Throughout the period, the two songs, namely, have an aura of Asian music. Researchers want to convey that the new virus epidemic There is an outbreak from Asia. or originating from China The researcher therefore chooses the appropriate chords and melodies for each part. The researcher chose to use the C Major scale and used the speed rate at 94 bpm. The speed rate was classified as medium speed. to correspond to the main melody and minor melody not too soon not too late For the composing of this song, the researcher used a trio Western style is used as a medium for narrative. to various feelings to remember the stories that happened in each event The researcher tries to use the writing technique to be as diverse and comprehensive as possible.



Figure 6. Character description

The speed and scale of the first verse for example, in the bar no. 11-14, 64-68, the researcher chose the Pizzicato technique, which means that the stringed instrument players pull the strings instead of the colored bows. It is used in conjunction with the Arco technique, which is to paint the bow. which corresponds to the description of Phancharoen. N. (2009 : 289) Pitsikato's voice It's a sound you've probably heard before. Maybe you've heard the beginnings of Flobots "Handlebars," or maybe you've heard a lot of jazz songs with a walking bass line. This article will teach you how to play pitsikato. with violin, viola, cello and upright bass.

The researcher has proposed the technique of Pizzicato (Pizzicato) to create to add color to the song. Not to be too monotonous and used to change the style of playing bass notes As in the example picture, in the bar no. 11-14 or playing as the main melody As shown in the example image in the bar no. 64-68.

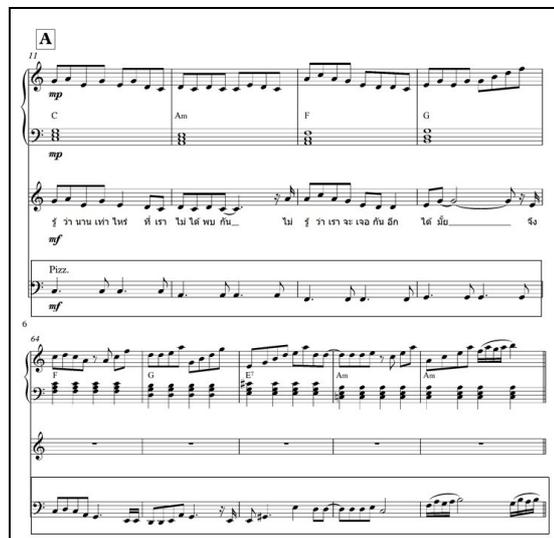


Figure 7 Pitsikato technique

Example of bar no. 48-51, melody transformation technique It is a technique that uses repetition to adapt. but still maintains the original melody

The researcher has proposed a melody transformation technique that amplifies the motif from the main melody to make the song interesting. There is elegance in both the main melody and the minor melody. The researcher has created a secondary melody. allowing listeners to feel the notes that are smooth, easy to listen to, comfortable to listen to. by using melody manipulation techniques That makes the song more charming and translating the melody also helps our songs to be easily recognizable by the listeners.



**Figure 8** Melodic variation technique

For example, Bar No. 68, the researcher chose a mimicry technique. It is a technique that occurs in cases where there are two or more melodies and occur at different times. Either repeat the same volume or change the volume.

The researcher has presented an imitation technique. Let's create in a piece of music It is an imitation of a piano and cello instrument playing the same notes and the same note proportions on the notes F A G A B to give the music a relaxed feel. On the other hand, the meaning is to let the listener relax with the melody. And not to listen to the music pattern in the horizontal way too much. The researcher therefore uses the imitation technique. Let's make music so that there is a wheel between the two instruments.



**Figure 9** Imitation technique

For example, in the bar no. 78-82, the researchers applied the Arpeggio technique. These are notes that consist of the 1-3-5 of a chord, which can be divided into major types such as Major, Minor, Dominant7, Minor7b5, diminished, Augmented. The most common basic chords are Major and Minor. The basic notes are 1-3-5. The way to figure out the Major Scale arpejo is to pull out the 1-3-5 notes from the scale and you'll get a C.E.G. in a normal triad-type C major. The 3rd flat is 1-b3-5, so it's a different way of thinking than the Major, so the note is C-Eb-G for a regular Triad Cm chord.

## Conclusion

This opus has 2 parts of the structure of the song, first of all is Part 1 called "The Voice of Us" and Part 2, "Wait", using techniques in a composition consisting of Episode. The Voice from Us" using 4 techniques, namely, backward technique. The use of musical techniques limited flow music Techniques for repeating song sentences, part 2, titled "Wait", using 4 techniques, namely the Pitsicato technique. melody manipulation technique imitation technique and the Arpejo technique. The script was successful in its objectives and scope fully defined including the publication of the essay. However, the researcher has studied the method of composing songs by using modern western music theory. This resulted in a creative resonance created by the impact of the novel coronavirus epidemic and can be used to convey to the academic music community including those who are interested in composing songs to continue.

## Discussions

Researchers describe suffering from emerging disease crises resulting in changes in social conditions and way of life such as economy, occupation, education, travel,

communication, etc., presented through the process of composing modern music. It can be divided into 4 parts, namely, Lyrics, Melody, Counter Melody, and Chord Progression, resulting in a new body of knowledge. It is consistent with Rasmees (2016: 152) who explained that, The composer must have the ability to create a melody. especially the composition of the melody to be consistent with the direction or overview of the music arrangement The composer may be tasked with arranging for someone else's song or even a song of his own. The ability to compose melodies adds a beautiful and interesting composition to a musical composition. They also have to devise a melody that is interesting and appropriate.

### Suggestions

This research work aims to present creative works of music composition using sentimental materials in the situation of the novel coronavirus outbreak. to reflect emotions as well as showing the story of the epidemic. Researchers can design creative works according to current issues or trends.

### Reference

- Deod. P. (2020). The impact of the Coronavirus Disease 2019 epidemic on food delivery service occupations. *Mahachulalongkornrajavidyalaya University* 7(6). 131-144
- Department of Disease Control. Ministry of Public Health. (2020). **Guide to the prevention and control of Coronavirus Disease 2019 for the people.** Bangkok: Agricultural Cooperative Association of Thailand Printing House.
- Department of Mental Health. (2020). **Knowledge of mental health care in the situation of the Covid-19 outbreak.** "The heart is ready to not get sick". Bangkok: Department of Mental Health, Ministry of Public Health.
- Emergency Operations Center, Department of Disease Control, Ministry of Public Health. (2020). **Information for Protect yourself from COVID-19 , Publication Document.** Bangkok: Printing House, Agricultural Cooperative Association of Thailand.
- Kittipraphat. S. (2020). **Social impacts of the Coronavirus Disease 2019 (COVID-19) outbreak and the economic crisis.** Educational project by the Office of the Permanent Secretary Social development and human security.
- Phanchaen. N. (2011). **Dictionary of Music Vocabulary.** 4th edition, Bangkok: Ketkarat Publishing House.

- \_\_\_\_\_. (2016). **Music destiny : collection of articles on academic creative music.**  
Bangkok: Thana Press Printing Co., Ltd.
- Rasmee. S. (2016). **Composition of modern music.** Bangkok: Saha Thammik Company Limited.
- Rungrueng. P. (2006). **Principles of Anthropology of Music.** (Ethnomusicology). 4th printing. Copy paper.
- Saengwongdee. P. (2020). The Global Crisis of the Epidemic of Emerging Infectious Diseases : Role of the Health Organization. **Society Piwat Journal Faculty of Social Work and Social Welfare Huachiew Chalermprakiet University.** 11(1), 88-108
- Suttajit. N. (2012). **Sangkhetism. The appreciation of western music.** 11th edition, Bangkok: Active Print Company Limited

## CREATIVE RESEARCH : BANGKOKTHONBURI MARCH

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### Abstract

Objective of the research is to study the “Bangkokthonburi philosophical motto” and interpret it for depth understanding for creating a new piece entitled “Bangkokthonburi March” or “March of Krungthepthonburi University” to be performed by military band together with vocalists. The research finding were: The Bangkokthonburi philosophical motto is “ Intelligent making – developing human – and morality practice” with matches with the philosophy of education “education is growth” and also rhymes with Benjamin Bloom’s taxonomy.

**Keywords:** March , Creative , Bangkokthonburi

### Introduction

Bangkokthonburi is an outstanding university; it is the largest university on westside of Bangkok Metropolitan, it being champion of “Thailand University Game” for three years continuously. The BTU offers bachelor’s degree and graduate level, a mastered degree and doctorate degree for Thai and international students. The university offering education in 15 faculties, 35 curriculums, including Faculty of Music, but doesn’t have the university’s march song yet, so that the researcher was interested in composing the march song for this university. In order to do so, researcher must study the BTU’s philosophy and its motto to understand the aim, educational attitude and university’s spiritual. The BTU’s motto “*Sāng -panya, Phatana-khon, Fuekfon-kunnatham* (สร้างปัญญา พัฒนาคน ฝึกฝนคุณธรรม” means “constructing intellectual - develops people - morality practice” is the supreme goal of the university in order to educate people.

### Objectives

1. To study the philosophical motto of Bangkokthonburi university
2. Compose the new piece “March Bangkokthonburi” for military band.

## Literature Reviews

### 1. Bangkokthonburi University's motto as related to Bloom's Taxonomy

Motto is short sentence or phrase chosen as encapsulating the beliefs or ideals guiding an institution. It is a brief statement that summarizes the purpose or beliefs of institute and is a guideline of performance. The BTU's motto consists of three parts; intellectual, skill and morality that can compare with Bloom's taxonomy three domains, cognitive, affective, and psychomotor.

**1.1 Cognitive domain** comprise of six aspects: 1) Knowledge; the recall of specifics and universals, methods and processes, a pattern, structure, or setting. 2) Comprehension; a type of understanding such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications. 3) Application; the use of abstractions and concrete situations' 4) Analysis; the breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and relations between ideas expressed are made explicit. 5) Synthesis; putting together of elements and parts to form a whole. 6) Creative; create the new thing, innovating.

**1.2 Affective domain** *includes the feelings, emotions, and attitudes of the individual.* The categories of this domain include receiving phenomena; responding to phenomena; valuing; organization; and characterization. This includes listening attentively to any source; responding to phenomena involves active participation of the listener to group discussion. Valuing involves the ability to see the worth of something and express it.

**1.3 Psychomotor** domain is to skills in the psychomotor or the ability to physically manipulate a tool or instrument like a hand that focuses on change and/or development in behavior and skills. (Anderson, 2001)

### 2. Military band

Military band has two major bands, the marching band, and the show bands.

**2.1 The marching band:** It is the band to be performed for marching and the instrumentation varies; generally contain brass, percussion, and woodwinds. Military marching bands often perform in parades with other military units and march in the same manner as other military personnel. Music is played at a constant tempo in order to provide a steady beat for other military units.

**2.2 The show bands:** The main role of this band is to be performed at sporting events and competitions, or for entertainment on some occasion. The show bands typically march in time to the music and may also participate in parades and competitions. Show bands contain brass and percussion instruments; they may or may not use woodwinds or a percussion pit. Typically, the show is not merely marching in lines, but involves creating designs, curves, letters, and moving illusions as their music progresses during the show.

**2.3 Musical instrument:** Normally military band consists of three groups of instrument wood wind, brass, and percussion. The woodwind part consists of Eb clarinets, Bb clarinet and bass clarinet; alto saxophones, tenor saxophones and baritone saxophones, flutes, and piccolos while bassoons and oboes are very seldom to be found in the band. Brass sections usually include trumpets or cornets, mellophone, tenor trombones, euphoniums or baritones, and sousaphones or tubas, often configured so that they can be carried over the shoulder with the bell facing forward. E-flat soprano cornets are sometimes used to supplement or replace the high woodwinds. Some especially large bands will use flugelhorn to cover the lower trumpet parts. Alto horns can also be used in place of the mellophone, although this is rare. Bass trombones are also sometimes used, especially in large bands. (Dobney, Jayson Kerr. 2001)

### **Research Methodology**

Research methodology is “creative research” consists of two parts, the research part, and the creative part. The research part is qualitative research studying the “philosophical motto” and perspective on educational management of Bangkokthonburi University. The creative part is to compose a new piece entitles “March Bangkokthonburi” to be performed by the military band. The following are working steps of this research:

1. Studying the “philosophical motto” and perspective on educational management of Bangkokthonburi University.
2. Study music literature and composition for writing the new composition.
3. Composing the new pieces “March Bangkokthonburi”.
4. Having experts to investigate the new composition.
5. Revising the new music follow the expertise’s suggestion

## 6. Presenting the new composition to public

**Creative Research Result****Part 1 Motto of Bangkokthonburi University**

The motto of Bangkokthonburi University was coined by Chaowalit Benjathikul the founder whom earned master degree in education from Prasanmit Educational College. He had well understanding of Bloom's taxonomy and derived the three domains of Bloom's idea to adopt and used as a supreme goal for his university. The motto has three key words: Intellectual making (สร้างปัญญา *sāng panya*, means involving a person's ability to think and to understand ideas and information: Human development (พัฒนาคน *pattana khon*): Affective practice (ฝึกฝนคุณธรรม *fuek fon khunatham* involve with morality and ethical). The three point or three domains said earlier are philosophical guide of BTU administrators, instructors, and personnel for their working to shape up student to be valuable and good citizen of the country.

**Part 2 Composition**

This part has two sections, the song text, and the music notation.

**Song text****มาร์ชกรุงเทพธนบุรี March Bangkokthonburi**

กรุงเทพธนบุรีสถาบันแห่งนี้ที่เราภูมิใจ	Krunthep-thonburi sathaban haeng nee thee rao phum jaii
กรุงเทพธนบุรีสถาบันแห่งนี้ที่เราเทิดไว้	Krunthep-thonburi sathaban haeng nee thee rao toed wai
เกียรติศักดิ์รักยิ่งกว่าสิ่งใด	Kiat ti sak ruk ying kwa sung dai
เกียรติยศปรากฏระบือไกล	Kiat ti yot prakot rabue klai
สถาบันยิ่งใหญ่กรุงเทพธนบุรี	Sathabun ying yai Krunthep-thonburi
สร้างภูมิปัญญาพัฒนาความเป็นคน	Sang phum panya pathana kwam pen khon
หมั่นฝึกฝนคุณธรรมประจำใจไว้	Mun fuek fon khunnatham prajum jai wai
คติพจน์จำจดเป็นหลักชัย	Katiphot jum jod pen luk chai
กตัญญูรู้คุณแผ่นดินไทย	Katunyu ru hun phandin Thai
น้อมนำทำให้ชาติไทยได้รุ่งเรือง	Nom num than hai chat Thai dai rung ruang
เราภูมิใจมีมิตรเมืองไกลจากไทยทุกส่วน	Rao phum jai mee mit muang klai chak Thai tuk suan

พวกเราล้วนชื่นชมสามัคคีกลมเกลียว

Phuak rao luan chuen arom samakkee  
klom klio

เราชาวกรุงเทพธนบุรี รวมดวงชีวีรักเดียว

Rao chao krungthep0thonburi ruam  
duang chee wee rak dio

คงมั่นประสานเกลียว

Khong mun prasan klio

หนึ่งเดียวแดนนี้ไม่มีเป็นรอง

ung dio daen nee mai mee pen rong

กรุงเทพธนบุรีสถาบันแห่งนี้แหล่งดีคนครอง

Krunthep-thonburi sathaban haeng nee  
laeng dee khon khrong

สร้างความเรืองรองชีวิตที่ดีไม่มีหม่นหมอง

Sang kwam ruangrong xheewit thee dee  
mai mee mom mang

ปลุกู้ปลุกรักไม่จืดจาง

Pluk roo pluk rak mai juod jang

ปลุกมิตรปลุกความคิดทุกถิ่นทาง

Pluk mit pluk kwam kit mai joed jang

พบทางสว่างชีวิตที่ยั่งยืน

Phob thang sawang cheewit tee yang  
yuen

### Translation

Bangkokthonburi is the institute that we proud of,  
Bangkokthonburi is the institute that we are admired,  
Honoring is our most love, our honor is widely well known,  
The great institute is Bangkokthonburi.

Intellectual making, humanship development, and  
morality practicing are all in our mind,  
This motto intact in mind,  
Gratefulness and royalty to our motherland,  
That makes Thailand fluorite and prosperous.

We proud of having friend from ever part s of the country,  
We are happy and enjoy our unity,  
We are Bangkokthonburi, the one for all and all for one,  
Stability of unity,  
It's the best place, never become second.

Bangkokthonburi, the institute owned by good people,

Build up the prosperous, good life with no disappointed,  
Growing knowledge, growing love,  
Meet with the bright path and prosperous life.

Music Score

มกราคมวิทยาลัยกรุงเทพธนบุรี

Arr: ศ.ดร.ส.สิงห์ โปษะ

March - 86

Voice

Piano

Flute

Clarinet in Bb 1

Clarinet in Bb 2

Alto Saxophone 1

Alto Saxophone 2

Tenor Saxophone 1

Tenor Saxophone 2

Baritone Saxophone

Horn in F 1

Horn in F 2

Trumpet in Bb 1

Trumpet in Bb 2

Trumpet in Bb 3

Trombone 1

Trombone 2

Euphonium

Tuba

Drum Set











68 E 7

Voice  
บท เพลง ที่ เพลง รัก ไม่ ล้า งาม เพลง งาม เพลง นอบ นวล ล้อ ฤๅ ชื่น งาม นอบ นวล ส  
ว่า ชื่น ชื่น ชื่น ชื่น

Pno.

Fl. *mp* *f*

Cl.1 *mp* *f*

Cl.2 *mp* *f*

Alto Sax.1 *mp* *f* *mp*

Alto Sax.2 *mp* *f* *mp*

Ten. Sax.1 *mp* *f* *mp*

Ten. Sax.2 *mp* *f* *mp*

Bari. Sax. *mp* *f* *mp*

Hn.1 *mp* *f*

Hn.2 *mp* *f*

Tpt.1 *mp* *f*

Tpt.2 *mp* *f*

Tpt.3 *mp* *f*

Tbn.1 *mp* *f*

Tbn.2 *mp* *f*

Euph. *mp* *f* *mp*

Tba. *mp* *f* *mp*

Dr. *mp* *f* *mp*

8

79

Voice

Pno.

Fl.

Cl.1

Cl.2

Alto Sax.1

Alto Sax.2

Ten. Sax.1

Ten. Sax.2

Bari. Sax.

Hrn.1

Hrn.2

Tpt.1

Tpt.2

Tpt.3

Tbn.1

Tbn.2

Euph.

Tba.

Dr.



# มาร์ชกรุงเทพธนบุรี

เนื้อร้อง ท่านอง ปิณฑูรา รุ่งเรือง

Introduction *Rubato*

1 *f* *p* *fff* *p*

5 *Tempo* *mf* *ff* A

9 กรุงเทพมหานคร

13 ริ ส ตา บัน แห่ ง นี้ ที่ เรา ภูมิใจ ไก่ กรุงเทพมหานคร

17 ริ ส ตา บัน แห่ ง นี้ ที่ เรา เทอ ด ไร่ เกียร ตี สัก คี รัก ยิ่ง กว่า สิ่ง

21 ไก่ เกียร ตี ยศ ปรา กฏ ระ บือ ไก่ ส ตา บัน ยิ่ง B ใหญ่ กรุงเทพมหานคร

25 ริ (ดนตรี) . . . . . สร้าง ภูมิใจ ป็ญ

29 ญา พั ฒ นา ความ เป็น คน หมั่น ฝึก

33 ฝน คุ ณ ธรรม ประ จำ ไก่ ไร่ ก ตี พจนั ฑำ จด เป็น หลัก

ชัย ก ตัญ ญ ู ู้ ุณ ฝ่น ดิน ไทย น้อม นำ ทำ ให้ ชาติ ไทย ได้ รุ่ง

37

41 <sup>เริ่ม</sup> **C**

45 เรา อูมิ ใจ มี มิตร เมือง ไกล จาก ไทย ทุก

49 ส่วน พวก เรา ล้วน รื่น อารมณ์ . สามัคคี กลม

53 <sup>กลี๋ย</sup> เรา ชาว กรุงเทพฯ ธน บู รี รวม ดวง ซี วี รัก

57 <sup>เดียว</sup> คง มัน ประ สาน . กลี๋ย หนึ่ง เดียว แห่ **D** นี้ ไม่ มี เป็น

61 . (ดนตรี) . . . . . กรุงเทพฯ ธน บู

65 รี ส ภา บัน แห่ง นี้ แห่ดี คน ปอง สร้าง ความ เรือง

69 ร่อง ซี วิต ที ดี ไม่ มี หม่น หมาง ปลุก ู้ ปลุก รัก ไม่ จืด

จาง ปลุก มิตร ปลุกความคิด ทุก สิ้น ทาง พบ ความ สว่าง ซี วิต ที ยั่ง

-2-

### Utilization of Research Result

4. Having musical score and parts of the new music “March Bangkokthonburi” for Bangkokthonburi University used.
5. Performing new music for public, life, internet or in the conference if any.
6. Having examples of studying international music to use for composing Thai contemporary composition performed by Thai and western musical instruments mixed.

## Conclusion

Creative research is met with Thailand 4.0 policy, it's a kind of value added on top of ordinary research which is come up with the pure knowledge as a research result. But the creative research produces new creative work such as new compositions or songs that are able to give new creative ideas for listeners, encourages and inspires listener for further thinking in order to produce some new works.

The composition "March Bangkokthonburi " in this research is a combination of Thai and Western music knowledge but not concentrate much on western musical harmony but making it as an easy listening music, so that the researcher never uses complex chords, but principle one and using a simple binary form.

One important point of the songs is depicting and portraying Bangkokthonburi University's philosophical motto, identity, and University's spiritual.

## Suggestions

Suggestion for this research; it is able to arrange the composition in other type of ensemble for easier performance such as big band, string band even brass band. Suggestion for further research is to compose new music bases on a single different of each Faculty.

## Reference

- Anderson, L. W., & Krathwohl. (2001). **A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives.** New York: Longman.)
- Dobney, Jayson Kerr. **Military Music in American and European Traditions.** In *Heilbrunn Timeline of Art History.* New York: The Metropolitan Museum of Art.
- Kaemmer, John E. (1993). **Music in Human Life Anthropological perspectives on Music.** Texas: University of Texas Press.
- May, Elizabeth. (1980). **Music of Many Cultures.** Berkley: University of California Press,1980
- Nettl, Bruno and Companies.(1992). **Excursions in World Music.** New Jersey: Prentice - Hall Inc.,1992

Roongruang, Panya. (2561) . **Kaan-wijai-sangsan-thang-dontri-lae-nataasin-Thai (การวิจัยสร้างสรรค์ทางดนตรีและนาฏศิลป์ไทย)**. Document for music conference, Music Educators Association (Thailand).

Sadie, Stanley.(1980). **The New Grove Dictionary of Music and Musicians**, 1<sup>st</sup> edition. London: Macmillan Publishers Limited, 1980

\_\_\_\_\_. (2001). **The New Grove Dictionary of Music and Musicians**, 2nd edition. London:Macmillan Publishers Limited, 2001

## DEVELOPMENT OF FREE IMPROVISATION LEARNING EXERCISE FOR HIGHER EDUCATION

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### Abstract

The purpose of this research is to develop free improvisation exercise for higher education which covers the contents and skills that are essential to free improvisational learning. Based on a review of related literature and research, with three experts evaluating for validity, the exercise is presented in four sections: 1) *Listening* 2) *Imitation* 3) *Exploration*, and 4) *Interaction Dynamics*, containing diverse musical skills necessary for free improvisational practice in individual, partnered, and group settings. However, since this exercise is only intended for higher education, future research should concentrate on a more informal setting and other educational stages.

**Keywords :** Free Improvisation, Musical Exercise, Higer Education

### Introduction

Improvisation is one of the most prominent skills in music education. In 2014, the National Association for Music Education (NAfME) developed music standards that includes improvisation and composition as the essential musical skills for music students at all levels (National Association for Music Education, 2014). This is in line with the College Music Society (CMS) guidelines which state that music education in higher education should be based on music creation processes such as improvisation and composition (Campbell, Myers, & Sarath, 2016).

The College Music Society describes the approach to learn improvisation in detail; students should be taught to improvise both in style-specific manners such as jazz, north Indian music and classical music, as well as an experience of interacting with 'Stylistically Open' or 'Free' improvisation. (Campbell, Myers, & Sarath, 2016;

Sarath, 2010). In this case, the researcher chose to explore the learning of the latter type of improvisation in this work.

In academic circles, there has been an increase in free improvisation learning studies in higher education over the past decade. It has been discovered that free improvisation is beneficial to the development of students in many ways. It builds students' confidence in musical creativity (Hickey, Ankney, Healy, & Gallo, 2016) and encourages students to spontaneously interact with music in a safe and equitable environment (Burnard, 2002; Kanellopoulos, 1999). In addition, free improvisation also provides a medium for musicians' musical expressions in a diverse cultural and musical styles (Lange, 2011).

In Thailand, free improvisation is now part of the music instruction in a higher education level. There are expert teachers who have included the related knowledge into their courses, with the support from the university for show management, workshop and academic conferences. (Tanid Sintaratana, 2020). However, there does not appear to be a specific course for mastering this kind of improvisation in Thailand. Accordingly, the researcher is interested to develop a free improvisation exercise in higher education that can be adaptable to any musical instruments, with the goal of spreading its essence to throughout Thai society.

## **Objectives**

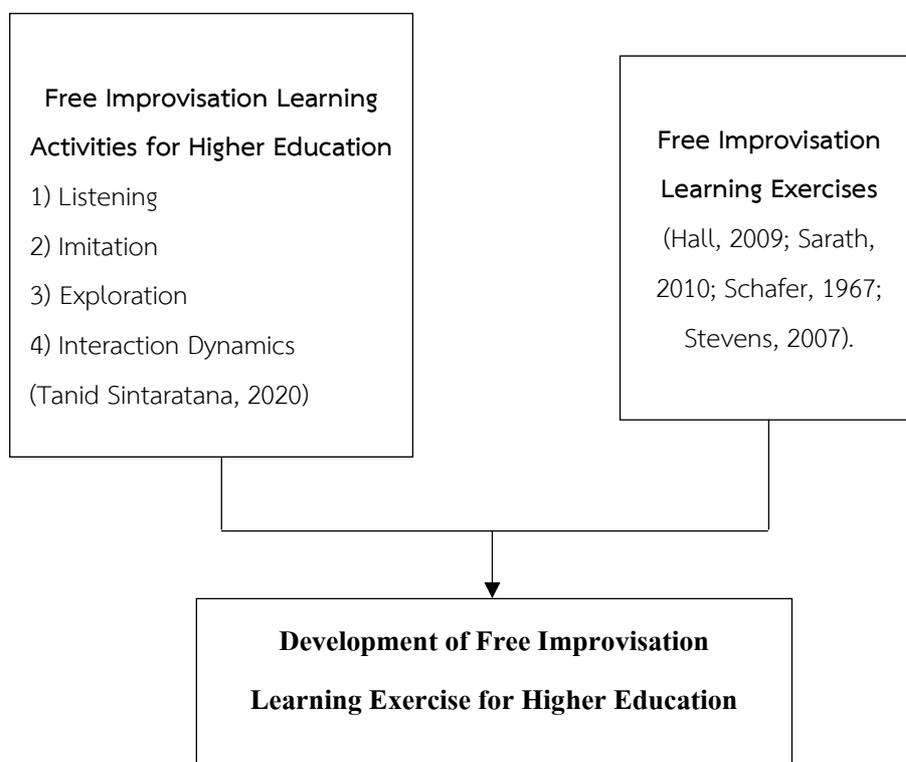
To develop an exercise in free improvisation for higher education

## **Literature Review**

The researcher chose to expand the findings from 'Content and Learning Management Guidelines for Free Improvisation in Higher Education' by Tanid Sintaratana (2020) to be the main structure of this study. Tanid concluded that the current stage of free improvisational learning management is divided into 4 aspects: 1) The objectives cover both deliberate and transcendence practices. 2) The content covers specific knowledge bases and referents. 3) Learning activities and facilities provides a learning environment that relates to the objectives; and 4) Evaluation and assessment covers both process and outcome assessment. In this study, the researcher focuses on the 'Learning Activities and Facilities' aspect, which is divided into 4 sections: (1) Listening (2) Imitation (3) Exploration, and (4) Interaction Dynamics (Tanid Sintaratana, 2020).

In addition, a number of relevant exercises have been used, including 1) ‘Free Improvisation: A Practical Guide’ by Tom Hall (2009), provides over 100 exercises for any group of people, no matter what their style of music or level of musicianship, to learn about free improvising. 2) ‘Ear cleaning; notes for an experimental music course’ by R. Murray Schafer (1967), Schafer’s notes and exercises to follow formed part of an experimental music course offered to first-year students at Simon Fraser University. 3) ‘Search and Reflect’ by John Stevens (2007), a series of participatory pieces from Stevens’ workshop that enabled people with very different musical backgrounds and abilities to engage equally in creative improvisation, and 4) ‘Music Theory Through Improvisation: A New Approach to Musicianship Training’ by Ed Sarath (2010), a hands-on, creativity-based approach to music theory and improvisation training designed for classical musicians with little background in improvisation or jazz musicians who are interested in new approaches to improvisation, music theory, and forging connections with the broader musical world.

### Conceptual Framework



**Figure 1** Development of Free Improvisation Learning Exercise for Higher Education Conceptual Framework.

## Research Methodology

This research uses content analysis to determine an appropriate way to develop free improvisation exercise in higher education.

### Scope

- The exercise is designed for students of any musical instruments in higher education level.

### Research Instrument

- Data analysis form
- Content validity evaluation questionnaire of the exercise

### Data Analysis

The analysis will be conducted in five stages:

#### **1) Study the theories, concepts, literature and related researches**

The stage of gathering related sources is critical to the development of an exercise. This will provide you a complete understanding of how to study free improvisation and what contents or activities are required.

#### **2) Choose the related exercises for the data analysis**

This research will be mainly conducted on the findings of ‘Content and Learning Management Guidelines for Free Improvisation in Higher Education’ by Tanid Sintaratana (2020). In addition, a number of relevant exercises have been used, including ‘Free Improvisation: A Practical Guide’ by Tom Hall (2009), ‘Ear cleaning; notes for an experimental music course’ by R. Murray Schafer (1967), ‘Search and Reflect’ by John Stevens (2007), and ‘Music Theory Through Improvisation: A New Approach to Musicianship Training’ by Ed Sarath (2010).

#### **3) Development of free improvisation exercise in higher education**

The researcher creates an exercise based on topics in the ‘Learning Activities and Facilities’ section from the previous study. As a result, the focus of this study will be on developing an integrated exercise with 4 sections: (1) Listening (2) Imitation (3) Exploration, and (4) Interaction Dynamics (Tanid Sintaratana, 2020).

#### **4) Evaluate the content validity of the free improvisation exercise**

The Index of Item-Objective Congruence (IOC) was used so as to find the content validity. In this process, the questionnaire was checked by three experts including (1) 1 expert in higher education improvisation learning (2) 1 expert in music education, and (3) 1 expert in free improvisation learning.

## 5) Summarizing research findings, discussion.

The researcher draws conclusions from the study's findings and develops into full-paper research.

### Results

'Free Improvisation Learning Exercise for Higher Education' comprises of 4 sections varying in skills and activities. The exercise brings students to experience with musical contents which are related to free improvisation, e.g., Rhythm, Dynamic, Structure, and Personal Vocabulary (Tanid Sintaratana, 2020). The exercise not only aims to encourage the abilities to understand and to improvise in trans-stylistic manner, but also gains the overall musicianship of the students.

The structure of the exercise draws from the findings of 'Content and Learning Management Guidelines for Free Improvisation in Higher Education' by Tanid Sintaratana (2020) and fulfills with instructions which is integrated from many reliable sources. The exercise is divided into 4 sections, each with its own subsections. Each section's details are shown below.

#### 1. Listening

In free improvisation, students must open their ears to listen and participate with the sound in various ways. Major concept of listening that involves with learning free improvisation is 'Attentive Listening', which refers to a type of listening that focuses on the elements within the sound without the specific aim of learning from the experience (Green, 2002). Furthermore, rather of considering musical notes to be the smallest atom of music, free improvisors prefer to perceive music as the 'Unit of Sound', or the combination of every element/aspect that composite into sound. (Hall, 2009).

From Corbett (2016), listening practice in free Improvisation learning can be broken down into three aspects:

##### 1.1 Acousmatic Listening

'Acousmatic' is the term coined by Pierre Schaeffer, the pioneer of musique concrète. This type of listening concentrates on the origins of the sound sources and how they were created. By practicing this type of listening, free improvisors will gain more ideas for creating different timbres of sounds.

**Listening Exercise: Acousmatic Listening (*Private Exercise*)**

**Step 1:** Listen to an excerpt from ‘Touch the Sound: A Sound Journey with Evelyn Glennie (2004)’ (without seeing the actual video).

**Step 2:** Listen again, list all the sounds you hear, and guess the objects that producing the sounds.

**Step 3:** Listen one last time, describe how the performers produced the sounds.

**Step 4:** Watch the actual video and evaluate yourself.

**Figure 2** Example of ‘Acousmatic Listening’ exercise.

### 1.2 Peripheral Listening

Most improvisors who practice this kind of non-interplay are quite aware of what the other musicians are doing. This will train students to listen out of the corner of their ears for musical statements made by others while continuing to perform their own thing.

**Listening Exercise: Peripheral Listening (*Private Exercise*)**

**Step 1:** Close your eyes and listen to every sound surround you.

**Step 2:** Try to focus on one sound and listen to it for a while.

**Step 3:** Seek for and focus on another sound that is the most noticeable, but still concentrate on the previous sound(s).

**Step 4:** Repeat Step 3. Try to focus many sounds as possible at the same time.

**Figure 3** Example of ‘Peripheral Listening’ exercise.

### 1.3 Sound Mapping

This is an exercise that combines listening and sound encoding skills to generate a graphic mapping of things been heard. The concept of ‘Sound Mapping’ is also significantly related to the ‘Graphic Score’ composition method, which encourage students to relearn the music in more ‘Visual Arts’ manners, e.g., color, space, and texture.

### Listening Exercise: Sound Mapping (*Private Exercise*)

**Step 1:** Prepare a paper and color pens/pencils. You will be a painter for the moment.

**Step 2:** Listen to 'Machine Gun' (1968), a track by Peter Brötzmann, and think about these musical elements;

*(1) How many sounds you hear on the track? Can you indicate when they start and stop?*

*(2) Which 'Directions' do the sounds go? Do they create any 'Textures'?*

*(3) How soft or loud the sounds are?*

*(4) What colors you would like to put on each sound?*

**Step 3:** Re-listen to the tracks twice. Now visualize and paint every sound you hear.

**Figure 4** Example of 'Sound Mapping' exercise.

## 2. Imitation

Imitation is one the important skills of free improvisors that enhance the ability to react and participate in real-time performance situations. In most kinds of improvisation, the common method of imitating is to transcribe from musical passages or recordings (Green, 2002). However, the ability to fully mimic the original source is diminished in the context of free improvisation. As a result, the exercise is designed to emphasize on 'Simultaneous Imitation,' or the ability to communicate rapidly through the use of the aural sense. Not only does the exercise focus on the instrumental approach, but it also includes a speech imitation practice, which is a type of human expression that has many similarities to music (Goodkin, 2002).

### 2.1 Speech Imitation

Speech is the fundamental skill that humans utilize to communicate in everyday life, and its elements share many similarities with music, e.g., articulation, intonation, tone, duration, dynamic, and accent. Allowing students to observe and replicate the qualities of speech can guide them develop the most efficient approach to express themselves in music.

**Imitation Exercise: Speech Imitation (*Group Exercise*)**

**Step 1:** Sitting in circle

**Step 2:** Start with one person pronounces his/her name.

**Step 3:** The one on the speaker's left observe and try to imitate how his/her pronunciation by focusing on these sonic elements: *articulation, intonation, tone, duration, dynamic, and accent.*

**Step 4:** The one who previously imitated repeats **Step 2 and 3**. The exercise continues in circle.

**Figure 5** Example of 'Speech Imitation' exercise.

## 2.2 Search and Reflect

This part of exercise is based the book, 'Search and Reflect', a music workshop handbook by John Stevens (2007). 'Search' means listening for and identifying all the musical elements in the environment. 'Reflect' means attempting to reproduce as nearly as possible the form and sound quality of the identified sound source. This piece improves the ability to listen to others while simultaneously playing an instrument.

**Imitation Exercise: Search and Reflect (*Partnered Exercise*)**

**Step 1:** Find the variety of shortest sounds ('The Click') you can produce on the instrument.

**Step 2:** Then, find your partner. After that, choose the one who will lead the exercise.

**Step 3:** The first player performs 'The Click' and the second has to imitate the sound. The first player determines the beat of the performance by the amount of time the second player leaves before coming with the first imitation. Then, continues the performance for 1 minute.

**Step 4:** Change the role of the leader, and repeat **Step 3**.

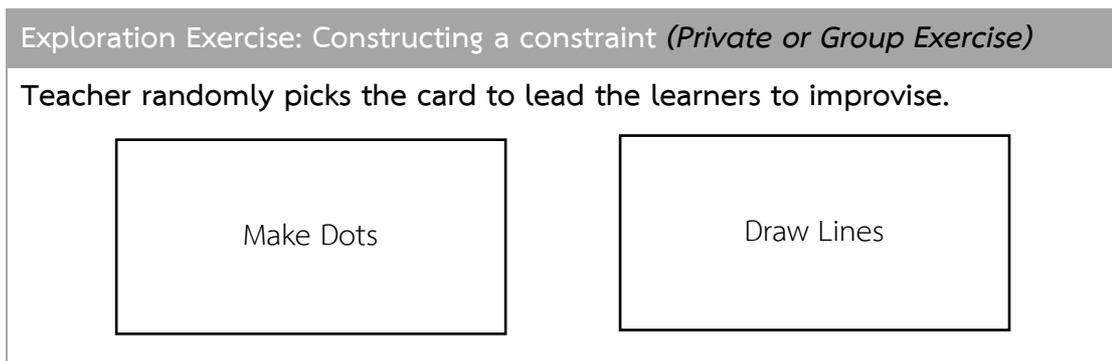
**Figure 6** Example of 'Search and Reflect' exercise.

### 3. Exploration

Exploration is a useful way to initiate creativity. The process also involves with a trial-and-error method, which encourages students to create their own ways to express themselves through music. According to the study, the most typical exploration exercise is broken down into two sections:

#### 3.1 Constructing a constraint

This part of exercise is based on ‘Oblique Strategies’, a card game by musician/artist Brian Eno and multimedia artist Peter Schmidt. This method will help learner to be focused on one topic at a time in order to improvise. Each card provides a text that will be constraint or a ‘Point of Departure’ for learners to challenge themselves to follow the instruction. The cards usually describe actions or adjectives that are partnered with another card that has the opposite meaning. These cards can be used efficiently in a collective improvisational setting.



**Figure 7** Example of ‘Constructing a constraint’ card game exercise.

#### 3.2 Prepared Instruments

Preparing the Instruments is to altering musical tools in order to express one’s own music in a specific way. This concept is mainly associated with developing the ‘Personal Vocabulary’, in which free improvisors are likely to find things or tools around them to make their instruments articulate the qualities of sound they desire.



**Figure 8** Example of ‘Prepared Instruments’ exercise.

#### 4. Interaction Dynamics

‘Interaction Dynamics’ is a set of possible interactions between performers that is most prevalent in free improvisational group performance. The concept of this interaction process is to emphasize the equality of all members of the group, as well as to challenge and reinvent the traditional roles of the instruments (Corbett, 2016). The most common types of ‘Interaction Dynamics’ are Dialogue, Support/Stepping Up, Counterpoint, and Independent Simultaneous Action (Tanid Sintaratana, 2020).

##### 4.1 Dialogue

This kind of musical interaction is similar to how people communicate through dialogues. The exercise will focus on the use of music/sound to interact.

##### 4.2 Support/Stepping Up

This exercise encourages students to engage with supporting role when others in the group make a bold statement.

##### 4.3 Counterpoint

Counterpoint is an interaction activity that involves with two (or more) simultaneous melodies that are perceived as independent lines and at the same time maintain a harmonic relationship. This exercise will lead free improviser to perform a counterpoint statement in real-time.

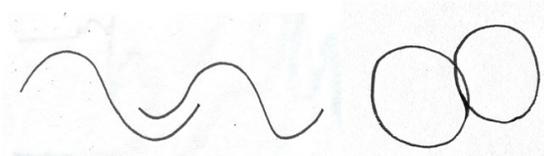
##### 4.4 Independent Simultaneous Action

Independent simultaneous action is the interaction where the participants in the group agree to disagree, in which there isn’t direct conflict but there’s also no sense of concertedness. As the result, two (or more) participants focus on their own statement, the result being a sonic collage of separate activities, an overlay of sounds.

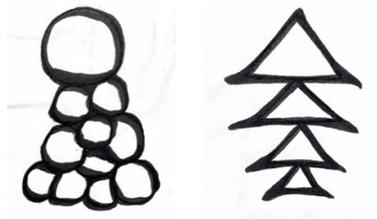
### Interaction Dynamics (Group Exercise)

Interpret the texts and visualize the graphic scores, as below, as your interaction to other members in the group. Discuss about your own interpretation and how to perform as a group:

#### (1) Dialogue



#### (2) Support/Stepping Up



#### (3) Counterpoint



#### (4) Independent Simultaneous Action

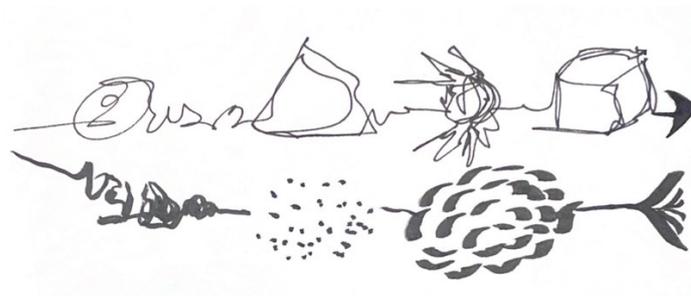


Figure 9 Example of 'Interaction Dynamics' exercise.

## Discussions

For the past century, 'Free Improvisation,' a one-of-a-kind music-making process, has still been discussed about what its core concept is—what free improvisors think when they perform—and, more importantly, how to learn this kind of music if it is completely free of preparation? However, the findings of many studies discovered that there are numerous ways to mastering free improvisation (Hall, 2009; Wood, 2019). Accordingly, the researcher is interested to study and develop a tangible learning approach of this music for the specific context, in higher education.

This research, titled 'Free Improvisation Learning Exercise for Higher Education', is intended to cover the contents and skills that are essential to free improvisational learning. The exercise, which is divided into four sections: 1) **Listening** 2) **Imitation** 3) **Exploration**, and 4) **Interaction Dynamics**, containing diverse musical skills practiced in individual, partnered, and group settings.

The **Listening** exercise emphasizes on examining the 'Unit of Sound' in 3 different aspects, including (1) *Acousmatic Listening* is the process of listening to a sound, identifying the sound sources, and investigating how to produce them. (2) *Peripheral Listening* is the process of listening to many sounds at a time, and (3) *Sound Mapping* is the process of visualizing the sounds into painting.

The **Imitation** exercise focuses on the ability to recognize the sound sources and express them in 2 aspects, including (1) *Speech Imitation* is a procedure that helps learners understand the fundamental concept of imitation through the use of everyday life skills: speech, and (2) *Search and Reflect* is the imitation process on music instruments that enhances learners' spontaneity and reflexivity.

The **Exploration** exercise emphasizes on developing learners' creativity or their own approaches to free improvisation in 2 aspects, including (1) *Constructing a constraint* is to improvise based on a constraint given by the cards, and (2) *Prepared Instruments* is to alter musical instruments by placing various objects to achieve the timbres assigned by the exercise.

Lastly, the **Interaction Dynamics** exercise focuses on developing learners' interactions between performers in the group in 4 aspects, including (1) *Dialogue* is a conversational approach to musical improvisation (2) *Support/Stepping Up* is to accompany other members in the group when they make a musical statement (3) *Counterpoint* is a contrapuntal melodic approach to improvisation, and (4)

*Independent Simultaneous Action* is an approach of improvisation in which each member of the group concentrates on their own statements.

In addition, this exercise could be viewed as a tool for the teacher, who should act as a facilitator to assist students in developing their own strategies and provide feedback as needed. Although there is no direct way to teach free improvisation, teachers could still use the exercise to create a positive learning environment that encourages students to develop their own approaches to this kind of music.

### **Suggestions**

1. The research's scope of study is limited to the higher education level. In fact, there are limitless approach to master free improvisation, including in an informal setting outside of the educational system, which is where this type of music originated. The next study should concentrate more on informal learning, groups of experienced musicians, and audience groups, as these are the main aspects of free improvisation practice.

2. Free improvisation learning should be adapted to music learners from the early stages. The researcher suggests that free improvisation teaching curriculum should be researched and developed at the other educational stages, especially the secondary school level. Students at this level are willing to take risks and try new things when it comes to creating music. This will result in a more intuitive approach towards music education in Thailand.

### **Reference**

- Burrows, J. (2004). **Musical archetypes and collective consciousness: Cognitive distribution and free improvisation**. *Critical Studies in Improvisation*, 1(1).
- Corbett, J. (2016). **A listener's guide to free improvisation**. The University of Chicago Press.
- Goodkin, D. (2002). **Play, sing, & dance : an introduction to Orff Schulwerk**. Schott.
- Green, L. (2002). **How popular musicians learn : a way ahead for music education**. Ashgate.
- Hall, T. (2009). **Free Improvisation: A Practical Guide**. Boston, MA: Bee Boy Press.

- Hickey, M. (2015). **Learning From the Experts: A Study of Free-Improvisation Pedagogues in University Settings.** *Journal of Research in Music Education*, 62(4), 425-445.
- Kanellopoulos, P. A. (1999). **Children's conception and practice of musical improvisation.** *Psychology of Music*, 27, 175–191.
- Lange, B. R. (2011). **Teaching the ethics of free improvisation.** *Critical Studies in Improvisation*, 7(2).
- National Association for Music Education. (2014). **Overview of 2014 Music Standards.** Retrieved from <https://nafme.org/overview-of-2014-music-standards/>
- Ng, H. H. (2018). **Collective Free Music Improvisation as a Socio communicative Endeavor: A Literature Review.** *Update: Applications of Research in Music Education*, 37(2), 15-23.
- Oliveros, P. (2005). **Deep Listening A Composer's Sound Practice.** USA: Deep Listening Publications.
- Sarath, E. (2010). **Music Theory through Improvisation: A New Approach to Musicianship Training.** Routledge.
- Schafer, R. M. (1967). **Ear cleaning; notes for an experimental music course.** Don Mills, Ont.,: BMI Canada.
- Schafer, R. M. (1992). **A sound education: 100 exercises in listening and sound-making.** Canada: Arcana Editions.
- Stevens, J. (2007). **Search & Reflect (Vol. 2).** United Kingdom: Rockschool.
- Tanid Sintaratana. (2020). **Content and Learning Management Guidelines for Free Improvisation in Higher Education.** (Master of Education (M.Ed.). Chulalongkorn University).
- Wood, C. A. (2019). **Improvisation Methods: A Non-Idiomatic Improvisation Course for the Undergraduate Music Curriculum.** (Doctor of Musical Arts, Graduate School of The Ohio State University).

## DIGITAL TRANSFORMATION

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### Abstract

Digital Transformation means different things to different people. Each organization's Digital Transformation will differ with respect to their individual challenges and because of this a variety of approaches and metrics have emerged and continue to evolve. Despite this, there appears to be five main areas where the transformation efforts should have the most impact. These areas are Customer experience, Operational agility, Culture and leadership, Workforce enablement, and Digital technology integration. This paper will touch on these areas and in the process attempt to explain what a Digital Transformation is, what a Digital Transformation platform is comprised of, and present five defining characteristics of how a Digital Transformation differs from an IT upgrade. In addition, ten metrics will be presented as part of a framework by which the success of a Digital Transformation can be gauged, as well as reasons for why Digital Transformations fail.

**Keywords :** Digital Transformation, Digital workspace, Big Data)

### Introduction What is the Role of Technology?

Today, technology plays an unprecedented critical role in the ability of an organization to grow and evolve their respective markets while continuously increasing value to customers. That is why Digital Transformation matters. It is the exercise by which an organization rethinks how to use technology, as well as people and processes, to better respond to potential changes in customer expectations. A Digital Transformation can be relatively small, such as the creation of mobile applications (apps), a company website, or an ecommerce platform where they didn't exist before (Boulton, 2021), or relatively large where digital platforms are created to accomplish the transformation. These platforms can comprise multiple components including a data-ingestion engine, a machine-learning transactional engine capable of performing tasks and/or rules-based activities, an analytical engine and increasingly, an Artificial Intelligence (AI) engine.

Additionally, Application Programming Interfaces (APIs) can be created and utilized along with other tools such as those that facilitate communication between software or monitor regulatory compliance, among others. Whatever the tools or applications, the components must all be aligned and integrated to create a better experience for all customers, employees, and ecosystem partners, while at the same time lowering costs and ultimately improving profitability (Bendor-Samuel, 2018).

A key difference between Digital Transformation and merely upgrading existing IT applications is that a Digital Transformation leads to new business models and new revenue streams (Palmer, 2021). This is what Amazon did when their shopping website struggled to become highly available and scale efficiently. In Amazon's own words their tools were a jumbled mess comprised of applications and architectures built without proper planning ("Architecting on AWS Student Guide", 2020). Amazon struggled to build and deploy database, compute, and storage components, taking months with each team building their own resources with no planning for scale or reusability. Solutions involved tools becoming well-documented APIs which then became the standard for developing and building internal services to create highly available, scalable, and reliable architectures as part of their own infrastructure. Recognizing the value of these efforts, Amazon went on to sell these database, compute, and storage services, in addition to others, as Amazon Web Services (AWS) and thus monetized these solutions.

In Amazon's example, upgrading existing IT applications was not what solutions called for. A large-scale Digital Transformation was needed and not only did Amazon fulfill its own core business requirements, but they created a new revenue stream and by April 2021 AWS was reported as having grown 32 percent year-over-year, hitting \$13.5 billion, and accounting for 12.5 percent of Amazon's total annual revenue (Moss, 2021).

In 2021, a Digital Transformation is said to consist of five defining characteristics that distinguish it from an IT upgrade (Palmer, 2021):

1. A digital-first culture
2. A design-thinking mindset
3. Effective change management
4. A data-driven organization, and
5. Quality champions

In a digital-first culture, every aspect of the business is evaluated in terms of its digital value as representatives are gathered from departments across the organization. If technology developed in-house was deployed, did it help operations run more smoothly, cut costs, or improve customer experience? If so, consider whether these same solutions can be adapted for other areas of the business or monetized in some other way.

The design-thinking mindset draws on a people-centric approach to addressing problems. It involves gathering key stakeholders and brainstorming likes, wants, frustrations, and goals, etc., while focusing on so-called digital solutions. As new processes evolve, they are tested in design sprints and employed in incremental steps towards implementation. The goal is to integrate front-office processes and technologies with back-office operations infrastructure to deliver an immediate and uninterrupted service experience (Bonnet et al, 2021).

Next, change can be disruptive and uncomfortable and effective change management throughout the transformation journey is essential. Change management requires communication from the C-suite addressing the fears, concerns, and reservations of all concerned especially when traditional roles and expectations are changed, upended, or eliminated.

Becoming a data-driven organization is a key attribute of Digital Transformation. Utilizing data and applying analytics in decision making while also uncovering hidden insights, is the point. Knowing what data exists where and knowing how to leverage it with AI is the first step towards success. Automation, Internet of Things (IoT), AI, and cloud migration have changed, and continue to change, the way businesses operate. These advances are said to require a shift in corporate mindset and culture, as well as a shift in business models. One such fundamental change is shifting from backward-looking reports to real-time data. Flex, a provider of supply chain services provides customers with an app whereby they can see their own supply chain status in real time and when disruptions occur, any needed adjustments are easier to facilitate. The data that results yields deep insights into trends which can translate into better choices being made, improved negotiations with sourcing partners, and more effective management overall (Bonnet et al, 2021).

Last but not least, quality champions are everyone in an organization doing their part to improve the quality of customer and employee experiences, products and services, and corporate image. These are key goals of any Digital Transformation.

Digital Transformation should be the result of strategic decisions and represent a leap forward. A successful Digital Transformation process should begin with a problem statement, a clear opportunity, or an aspirational goal (Ferro, 2020). In his article titled "CIOs disrupt IT operating models to align with digital business", author Clint Boulton (Boulton, 2017) credits Deloitte Consulting's 2017 8th Tech Trends report with the approach of breaking down bureaucratic silos between IT and business. An important element in this process, and in any Digital Transformation initiative, is leadership from the top. Transformation success begins with an inspired, forward-thinking management vision and a responsibility by upper management for integrating the transformation across silos while also rethinking traditional roles and responsibilities. Generally, the priority within an organization for embarking upon a Digital Transformation is one in which a customer-centric approach is front and center when implementing new strategies (Rudder, 2017).

The speed by which companies were forced to adapt during the pandemic became a measure of an organization's "agility". Pivoting from growth-focused metrics to cost-cutting resilience is what saved many organizations and going forward a primary competitive differentiator will be responsiveness; to customers, employees, market shifts, the environment, and ecosystems, to name a few (Overby, 2021). As a result, companies that found themselves leaning heavily on automation, AI, and edge computing in order to pivot their operations during 2020 are now finding themselves in a much better position in 2021 with respect for realizing greater efficiencies and moving faster at capturing revenue gains. In short, they are farther along on their Digital Transformation journeys.

Digital Transformation is widely accepted to be an imperative to maintaining relevancy and staying competitive, yet research conducted by Harvard Business Review shows that 80% of business leaders say their transformation efforts are ineffective ("Rethinking Digital Transformation", 2020). The reasons for this are said to include institutional complacency, a lack of executive buy-in and proactive sponsorship, competing ideas of success, poor communication surrounding the initiative, declaring victory too soon, and an inability to scale digital innovation beyond pilot projects. These may be contributing factors to poor Digital Transformation results but there is believed to be another dynamic and that is a failure to regard an organization as a complex system versus a complicated one ("Transformation takes practice", 2020). A complicated system is comprised of components whose interactions with each other

are known and predictable making problem solving a process of analysis. A complex system on the other hand is comprised of components whose interactions are known to some degree but remain largely unpredictable. Today's large organizations are considered complex, that is sociotechnical systems with many dynamics, both human and technical that make problem solving an involved process requiring probing and sensing, as well as hypothesis and experimentation in rapid and iterative cycles, all of which are hallmarks of an agile approach which is deemed more effective in identifying the best solutions and ideas.

### **Objectives**

1. This paper will touch on these areas and in the process attempt to explain what a Digital Transformation is. .
2. what a Digital Transformation platform is comprised of, and present five defining characteristics of how a Digital Transformation differs from an IT upgrade..

### **Literature Review**

Bonnet, D. & Westerman, G. (2021, Winter Issue Vol. 62, No. 2). The New Elements of Digital Transformation. MIT Sloan Management Review.

Bendor-Samual, P. (2018, December 27). What is a digital platform? Retrieved October 22, 2021

Boulton, C. (2017, February 14). CIOs disrupt IT operating models to align with digital business. Retrieved October 23, 2021

Rudder, C. (2017, February 17). Successful digital transformation requires change from the top. Retrieved October 22, 2021

Transformation takes practice - Deliver with increased speed and innovation using open ways of working (2020). Red Hat. Retrieved October 27, 2021

### **Conceptual Framework**

While the focus of this paper is on Digital Transformation with respect to large organizations in pursuit of new business models and new revenue streams, business organizations are not the only things touched by Digital Transformation. This has also influenced currencies, financial services, farming, and medicine to name only a few. Digital Transformation is also transforming small companies and individual lives as well. From smartphones, to Zoom meetings, to massive digital platforms created for

the use of analyzing data to uncover unseen or unforeseen insights and trends, Digital Transformation is impacting the way we work and live as well as impacting the lives of everyone and everything.

### **Research Methodology**

We used the current trends, formats that were adopted by various corporate entities as well as compliance agencies in areas of big data handling and security. Encryption was pivotal and essential. The security, both physical and cloud elements are included in the creation of a true digital transformed entity. The variable factors included management modules, employee and outsource modules integrated into the cloud platform.

### **Results**

We were able to come to a working procedure and critical adoption of transforming a regular business into a true digital entity by bringing together all the necessary elements for a successful conversion and smooth transition.

### **Discussions** (size 16 points, bold)

Managing Big Data and ensuring Security that must be imperative in the transformation and transition process.

### **Suggestions**

Companies can begin the transformation by charting out their key operational elements and creating template schematic of the workflow. Each element on the workflow needs to be checked and completed as to what the process is. Then it can be put into the overall workflow taking out all the manual elements. This requires some customisation software that the authors have created.

### **Reference**

Boulton, C. (2017, February 14). **CIOs disrupt IT operating models to align with digital business**. Retrieved October 23, 2021 from <https://www.cio.com/article/3170024/cios-disrupt-it-operating-models-to-align-with-digital-business.html>

- Boulton, C. (2021, June 24). **What is digital transformation? A necessary disruption.** Retrieved **October 28, 2021** from <https://www.cio.com/article/3211428/what-is-digital-transformation-a-necessary-disruption.html>
- Haff, G. (2021). **Digital transformation: How to accelerate with care.** Retrieved **October 27, 2021**, from <https://enterpriseproject.com/article/2021/5/digital-transformation-how-accelerate-care>
- Ferro, J. (2020, August 6). **Digital transformation: 5 truths of successful leadership.** Retrieved **October 25, 2021** from <https://enterpriseproject.com/article/2020/8/digital-transformation-how-lead>
- McLaughlin, L. (2020, February 7). **CIO role 2020: Everything you need to know about today's Chief Information Officers.** Retrieved October 29, 2021 from <https://enterpriseproject.com/article/2019/9/cio-chief-information-officer-role-explained>
- Moss, S. (2021, April 30). **Amazon Web Services revenue grows 32 percent to \$13.5bn.** Retrieved October 30, 2021 from <https://www.datacenterdynamics.com/en/news/amazon-web-services-revenue-grows-32-percent-to-135bn/>
- Palmer, M. (2021, June 7). **Digital transformation vs. IT modernization: What's the difference?** Retrieved **October 21, 2021** from <https://enterpriseproject.com/article/2021/6/digital-transformation-vs-it-modernization-whats-difference>
- Rethinking Digital Transformation New Data Examines the Culture and Process Change Imperative in 2020 (2020). **Harvard Business School Publishing Analytic Services.** Retrieved October 29, 2021 from [https://www.redhat.com/cms/managed-files/cm-digital-transformation-harvard-business-review-analyst-paper-f22537-202003-en\\_0.pdf](https://www.redhat.com/cms/managed-files/cm-digital-transformation-harvard-business-review-analyst-paper-f22537-202003-en_0.pdf)
- Rudder, C. (2017, February 17). **Successful digital transformation requires change from the top.** Retrieved **October 22, 2021** from <https://enterpriseproject.com/article/2017/2/successful-digital-transformation-requires-change-top>
- State of Enterprise Open Source, The (2021). **Red Hat.** Retrieved **October 27, 2021** from <https://www.redhat.com/en/enterprise-open-source-report/2021>
- Transformation Masters, The New Rules of CIO Leadership (2018). **Harvard Business Review Analytic Services.** Retrieved **October 25, 2021** from [https://enterpriseproject.com/sites/default/files/transformation\\_masters\\_new\\_rules\\_cio\\_leadership.pdf](https://enterpriseproject.com/sites/default/files/transformation_masters_new_rules_cio_leadership.pdf)

Transformation takes practice - Deliver with increased speed and innovation using open ways of working (2020). **Red Hat. Retrieved October 27, 2021** from [https://www.redhat.com/cms/managed-files/RDHT-026242%20-%20Open%20Practice%20Library%20E-Book\\_v7.pdf](https://www.redhat.com/cms/managed-files/RDHT-026242%20-%20Open%20Practice%20Library%20E-Book_v7.pdf)

Overby, S. (2019, February 13). **Digital transformation ROI: How to check a project's payoff. Retrieved October 25, 2021** from <https://enterpriseproject.com/article/2019/2/digital-transformation-roi-how-to-do-investment-checks?page=0%2C1%2C0>

Overby, S. (2021, May 5). **10 digital transformation metrics to measure success in 2021. Retrieved October 25, 2021** from <https://www.businessprocessincubator.com/content/10-digital-transformation-metrics-to-measure-success-in-2021/>

## DIRECTIONS OF HUMAN RESOURCE MANAGEMENT IN THE CONTEXT OF GLOBALIZATION

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### **Abstract**

The objective of this study was to explore the salient subject matter of human resource management in the context of globalization. The study was exploratory in nature. The needed data were collected from various documents, the internet, and textbooks. The collected data were analyzed by means of categorizing, systematizing synthesizing and describing.

As a result of the data analysis, the researcher has discovered the facts specified below.

1) Trends of HRM. Four trends of HRM have come being. They are the following: the increased globalization of economy; radical change in technology; increased legal action against a person or organization; the changed characteristics of persons in the labor force. 2) Best Practices in Creating the Competency Model. The practices are compared of the following: analyzing the data pertaining to competencies; systematizing and presenting the competency information. 3) Effective Human Resource Planning. The human resource planning includes 6 steps: (1) environmental scanning, (2) labor demand forecast; (3) labor supply forecast, (4) gap analyzing, (5) action programming, and (6) control and evaluation. 4) Career development in the Organization. There are a variety of factors responsible for the career makeover such as learning from social media, self-learning, shared learning with others, and so on. As it is deemed essential that individuals are being have individual employability as well as portable competencies. 5) Personnel Selection. The most important thing about the personnel selection in the development and evaluation of selection procedures. This involves several steps including: job analysis, recruitment strategy determining the validity of selection methods, and determining the weighting system for data from selection methods.

**Keywords:** human resource management; globalization

## Introduction

Nowadays human resource management is of vital importance to the success of organizations-both public and private organizations. The persons who play dominant roles in human resource management are human resource managers, directors of human resources, employee benefit managers and employee relations managers. Due to the rapidly changing world, the characteristics of these persons have changed to the greatest extent. In other words, their tasks, knowledge, skills, abilities and work activities are far more different from what were in the past. Likewise, the subject matter of human resource management has changed to a substantial degree. It is deemed desirable to explore some novel subject matter of HRM particularly the one that is salient and interesting.

## Objectives of the Study

The main objective of the study was to ferret out the salient and interesting subject matter of HRM. The researcher has high hope that the finding of the research can provide very useful and insightful information to all readers or scholars interested in HRM.

**Researcher Method.** The research is exploratory in nature. The main sources of data were documentary, English textbooks and the internet. The collected data were analyzed by resorting to categorizing, systematizing, synthesizing, describing and summarizing.

**Finding.** As a result of the data analysis, the researcher has discovered that there are 5 important ones they are the following:

1) trends of HRM, 2) best practice in competency modeling, 3) effective human resource planning, 4) career development in an organization, and 5) personnel selection. The details of the 5 areas are discussed below.

### 1. Trend of HRM.

#### **Trend I: the increased globalization of the Economy.**

Today a company (or even an individual) can computer or collaborate from almost anywhere in the world. Over 1,000,000 American tax returns were prepared in India in 2011. An Indian entrepreneur said: "Any activity when we can digitize and decompose the value chain, and move the work around, will get moved around. Some people will say, "yes, but you can't save me a steak". True but I can take the reservation for your table sitting anywhere in the world." There is no question that

the increasing globalization of most of the world's economics will affect HRM. It is predicted that most of the largest U.S. companies will soon employ more workers in other countries other than the United States and that the growth for most major corporations will derive from offshore operations.

Globalization creates greater competition and fosters more concern over productivity and cost control. One important reason for the recent increased interest in HRM is the perceived connection between HRM expertise and productivity. Most corporate Americans now know that competing in an increasingly global environment requires constant vigilance over costs and productivity and customer satisfaction. A growing of human resource in dealing with many of these issues.

### **Trend 2: Technological Changes, Challenges and Operativities.**

The second trend in the rate of change in technology. More organizations are now evaluating their human resource and labor costs in the context of available technologies based on the theory that products and services can be delivered more effectively and efficiently through an optimal combination of people, software, and equipment, thus increasing productivity.

The advent of new technology has created a variety of concerns for management. Employee privacy and intellectual property rights are increasingly cited as major concerns. With computer attacks accessing worldwide, unseeing confidentiality of employee data is a growing concern, and the liability of an organization in the event of security breaches is still unclear. Virtually all of the most successful high-tech companies today rely more and more on the internet for fast, convenient, and efficient recruiting of their core personnel. The trend line for other sectors of the U.S. economy is strong in this same direction.

### **Trend 3: Increase in Litigation and Regulation Related to HRM**

In general, HRM-related laws and regulations reflect societal responses to economic, technical, or political issues. For example, the Civil Rights Act of 1964, which prohibits job discrimination on the basis of race, sex, color, religion, or national origin was passed primarily in response to the great differences in economic outcomes for blacks, compared to whites.

Organizations are bound by a plethora of federal, state and local law, regulations, executive orders, and rules that have an impact on virtually every type of personnel decision. These are health and safety regulations, laws regarding employee pensions and other compensation programs, plant closures, new immigration laws and a growing

number of equal opportunity laws and guidelines. Today's HRM professions must be familiar with many acronyms such as ADEA, OSHA, EEOC, ADA, WARN and so on.

Each of these laws represent a major regulatory effort. These is same indication that regulation will increase in the years head in the form of new EEO legislation related to far pay, union organizing, and sexual orientation protection.

Nowadays organizations spend considerable time and expense in order to comply with labor laws and regulations and for to defend against allegations regarding violations.

#### **Trend 4: Changing Characteristics of the Work farce**

Compared to 10 years ago, American wakes are more cynical toward work and organizations, getting older, and for a growing number, becoming less prepared to handle the challenges of work today. The composition of workforce is changing drastically, and these changes are affecting HRM policies and practices.

As a result of these changes on workforce composition, many organizations are implementing programs in diversity, flexible programs, child and elder care assuagement, are career development strategies so that and nonwork responsibilities can be more easily integrated Building and sustaining a quality workforce form this diversity is a great challenge for HR (Bernardin and Russell, 2013).

#### **2. Best Practice in Competency Modeling**

Competency modeling is a popular form of work analysis today. A competency is defined as an “underlining characteristic of person which results in effective and for superiors performance on the job” or as a “cluster of related knowledge, skills and attitudes that affect the major past of one's job, that correlates with performance in the job, and that can be measured against well-accepted standards.”

The set of competencies is usually called the competency “model”. Competencies are not significantly different KASOC, (knowledge, abilities, skills and other characteristics) although the modeling approach tends to be more focused on organizational strategy goals and important performance or outcome measures.

Best practice in competency modeling is comprised of 3 steps, namely analysis of data pertaining competency information, and making use of the information relevant to a competency.

##### **1) Analysis of Pertaining to a Competency.**

This includes several activities, some of which are the following:

(1) take into account the context of an organization. (2) Connect competencies with organizational goals. (3) Collect data from top executives of an organization. (4) Use rigorous job analysis methods.

## **2) Organization and Presenting Competency Information**

(1) Define the competency structure. A competency can be defined as “KASOCs of a Person”

(2) Define the level of proficiency of competencies. Try to define the level of proficiency in terms of observable behaviors and outcomes as well as various contextual factors.

(3) Use the jargons an organization.

(4) Identify two types of competencies: basic competencies and job-specific competencies. (5) Make use of competency libraries.

(6) Provide the details of competencies.

(7) Use diagrams and heuristics to keep the employees well-informed about the competency model.

## **3) How to use Information Concerning Competencies**

(1) Use various tactics to enable the competency model be widely be accepted and used by all staff members of an organization.

(2) Use competencies with the purpose of developing the human resource of developing the human resource systems.

(3) Use competencies to change the human resource systems.

The change in the human resource systems can be done with great convenience precisely because these is a small member of competency and the competency is identified in broad terms.

## **4) Effective HR Planning**

Effective HR planning should involve (1) environmental scanning, (2) labor analysis, (3) supply analysis, (4) gap analysis, (5) action programming, and (6) evaluation. Some details of the HR planning process are discussed below.

**(1) Environmental scanning.** Identify and anticipate sources of threats and opportunities, scanning the external environment (competitors laws regulation) and internal environment (strategy, technology and culture).

**(2) Labor demand forecast.** Project how business needs affect HR needs, using qualitative methods (e.g. Delphi, nominal) and quantitative methods (trend analysis, simple and multiple linear regression analysis)

(3) **Labor supply forecast.** Project resource availability from internal and external sources.

(4) **Gap analysis.** Reconcile the forecast of labor supply and demand.

(5) **Action programming.** Implement the recommended solution from step 4.

(6) **Control and evaluation.** Monitor the effects of the human resource planning by defining and measuring critical criteria (e.g.) turnover costs, break-even costs of new hires (Bernardin and Russell, 2013).

Human resource planning (HRP) seeks to place the right employees in the right job at the right time and at the right job at the right time and at the lowest possible cost, thereby providing the means for the organization to pursue its competitive strategy and fulfill its mission. Planning improves the organization's ability to create and sustain competitive advantage and to cope with problems, threats and opportunities arising from change-technological, social, political, and environmental. HRP and all of its derivatives should always that lose this focus ultimately may have a negative impact on the forecast personnel demand, assess supply, and reconcile the two.

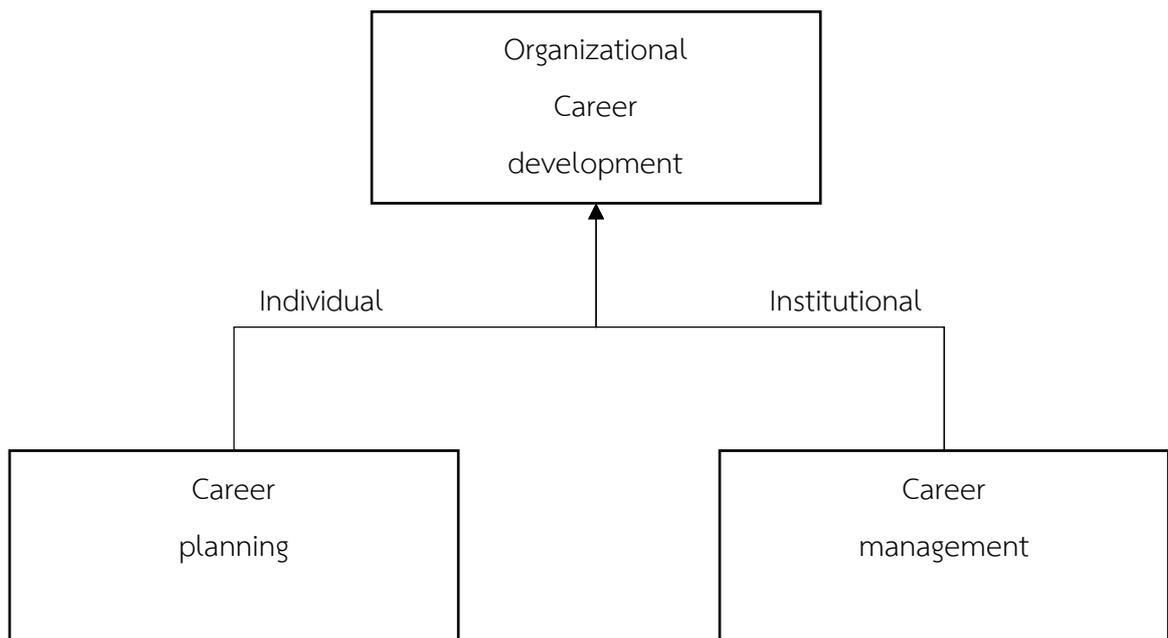
### 5) Career Development in an Organization

A **career** can be defined as an "individually" perceived regencies of attitudes and behaviors associated with work-stated activities and experiences over the span of a person's life". (Hall, 1976).

**Career management** is the organizational process of preparing, implementing, and monitoring career plans undertaken by individuals alone or within the organization's career systems.

A **career development system** is a formal, organized, plan effort to achieve a balance between individual career needs and organizational workforce requirements.

## A Model of Organizational Career Development



### Subprocesses

- Occupational Choice
- Organizational Choice
- Choice of job assignment
- Career self-development

### Subprocesses

- Recruitment and byelection
- Human resource allocation
- Appraisal and evaluation
- Training and development

Career development have been shows to enhance the career satisfaction of employees and to improve organizational effectiveness. It may be difficult, however, to completely integrate individual and organizational career efforts because the rate at which an individual growth and develops may not parallel and organization's needs.

**Given the changing views of careers in organizations what should individuals do to be prepared for future jobs? The following tips are offered for individuals regarding their careers.**

- 1) the focus today should be on the individual's employability.
- 2) Employees need to take more control of their careers than they ever have before and bool out for their own best career interests.
- 3) Employees must develop new and better personal skills of self-assessment and career planning.
- 4) individuals need to set career to set career goals and dearly define what they are interested in (e.g. talents, preferences)

5) Especially during the early career period, employees need to main a technical specialty. They must also be careful not to become obsolete or too narrow in this function expertise.

6) individuals must invest in reputation building or image enhancement to illustrates success and suitability for jobs (Greenhaus and Callanaw, 1994)

7) individuals will need to develop this collaboration skills become the use of project teams in organizations will continue to increase.

8) Employees will need to develop multiple networking and peer learning relationships.

9) the new career will be a continual learning process and necessitate that the individual develop self-knowledge, adaptability, and flexibility. Individuals will need to be adaptable to changing job requirements.

10) individuals will need to periodically solicit feedback to appraise to appraise how they are doing relative to this career goals.

11) Individuals now need to commit to lifelong learning to keep their skills relevant, whether by additional schooling or taking or new assignments. They can use sites such as Linked in Twitter, Meetup and You Tube to learn new things and explore their interests and passions (Bernardin and Russell, 2013).

### **Importance of Understanding Career Development**

Today's competitive business environment has forced organization to restructure and downsize, resulting, in fewer hierarchical levels and traditional promotional opportunities for employees. At the some times these is increased pressure to improve productivity or risk falling prey to larger corporations. The creation of new technologies has required that individuals update their skill or lese become outdated. A number of organizational change initiatives could have undesired consequences for individuals. These include the following:

**Downsizing** - jobs are cut from the organizations.

**Delaying** - jobs are reclassified more broadly. Yet old reporting lines exist to maintain managerial control.

**Decentralizing** – responsibilities are reassigned from the corporate centralized function to functions in each location or at lower levels.

**Reorganization** – companies may be refocusing around care competencies.

**Cost-reduction strategies** – the same work is done with fewer resources.

**IT innovations** – how the work is done is altered due to advances in information technology.

**Competency measurement** – skill sets required of employees are redefined or measured in different ways.

**Performance – selected pay** – pay is linked to performance and used as a motivator.

### **Components of Career Development Systems**

Some of the more popular career development activities are listed below.

#### **Self – assessment tools**

Career planning workshop

Career workbook

#### **Individual counseling**

#### **Information service**

Job – posting systems

Skill inventories

Career ladders and paths

Career resource centers

#### **Organizational assessment programs**

Assessment centers

Psychological assessment

Promotability forecast

#### **Developmental Programs**

Assessment centers

Job rotation programs

Tuition refund plans

Internal train programs

External train programs

External train seminars

Formal mentoring programs

#### **Career programs for special target groups**

Fast – track or high – potential employees

Organization programs

Supervisors and managers

Executive coaching

Programs for women, minorities, and employees with disabilities.

### **Onboarding programs for new employees**

Programs for late career and enticement

Plan to impose work-family balance

Career development programs must be integrated with and supported by the existing HR programs in the organization if they are to be successful. Career programs and HR programs need to be linked to must individuals' growth need and the organization's staffing needs.

Career development programs must be cen-coraed with organizational and individual effectiveness over the short and long sure. It is the suppressibility of the career staff to work with management to ensues that career programs an integrated with the HR foundations and are vocatively evaluated. (Bernardin and Russell, 2013).

### **Personnel Selection**

Personnel selection is key to organization effectiveness. The most successful firms use methods that accurately predict future performance. Organizations should be interested in selecting employees as a long as the organization needs there and, of course, will not engage in coveter productive avoidable accidents, and employee theft.

#### **Development and Evaluation of Selection Procedures.**

There are 4 steps in the development and evaluation of a selection procedure

##### **1. Job analysis/ Human Resource Planning**

Identify knowledge, abilities, skills and other characteristics (KASOCs) (also known as competencies).

##### **2. Recruitment Strategy: Select/Develop Selection Procedures**

Review options for assessing applicants on such of the KASOCs:

Standardized test (cognitive, personality, motivational, psychomotor)

Application blanks, biographical data background and reference checks, accomplishment record.

Performance tests, assessment centers, interviews.

##### **3. Determine Validity For Selection Methods**

Criteria-related validation or validity generalization.

Expert judgment (content validity).

##### **4. Determine Weighting System For Data From Selection Methods**

In seem, personnel selection continues to be a critical HRM responsibility. A number of commonly used test and other assessment methods.

Have been reviewed. While GMA or cognitive ability test are among result in adverse impact against minority groups. Conversely, many personality tests are safe from legal problems because they typically have no adverse impact, yet are less valid. These noncognitive measures are clearly less valid than GMA in the prediction of overall job performance

#### Recommendations for Practical Use

1. All HRM administrations should take into account the major Trends affecting HRM when conducting their HR activities.
2. the competency model should be put into practice as for as the administrative practices of the public and private sectors are concerned.
3. Attach great importance to KASOCs (knowledge, abilities, skill, and other characteristics) whenever personnel selection activities take place.

#### Recommendations for Future Research

1. a research study on the compensation and fringe benefits should be compensated and fringe benefits should be conducted.
2. Since employee health and safety are of vital importance, a research study relevant to this matter is a must.

#### References

- Bernardin, John H. and Russell, Joyee. (2013). **Human Resource Management**. New York, NY: McGraw-Hill, Education.
- Byars, Loyd L. and Rue Leslie W. (2008). **Human Resource Management**. New York NY: McGraw-Hill Irwin.
- Cascio, W.F and Aguinis H. (2011). **Applied Psychology in Human Resource Management**. Upper Saddle River, NJ: Prentice Hall.
- Mondy, R. Wayne. (2002). **Human Resource Management**. Boston: Prentice Hall.
- Noe, Raymond A. (2002). **Employee Training and Development**. New York, NY: McGraw-Hill, Education.
- Rusrell, C.J. et al. (1990). "Predictive Validity of Biodata Items". **Journal of Applied Psychology**. 15, PP. 569-580.
- Werther, William B. and Davis Keith. (2003). **Human Resource and Personal Management**. Singapore: McGraw-Hill, Companies, Inc.

## EFFECTIVENESS OF THE PUBLIC ACTIVITIES ADMINISTRATION OF HUNKHA SUBDISTRICT MUNICIPALITY, HUNKHA DISTRICT, CHAINAT PROVINCE

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### Abstract

The objectives of this study were : 1) to determine the effectiveness of the public activities administration of Hunkha Subdistrict Municipality, Hunkha District, Chainat Province; and 2) to compare the opinions of people with different personal backgrounds regarding the public activities administration. The sample of the study was composed of 389 people aged 18 years or over living in the areas under the jurisdiction of Hunkha Subdistrict Municipality, Hunkha District, Chainat Province. The study instrument was a number of self-administered questionnaires containing questions having a -5 point, rating scale. The collected data were analyzed with the help of descriptive statistics (percentage, mean, standard deviation, a t-test and an F-test).

The results found that: (1) Holistically, the effectiveness of the public activities administration was found to be at a high level on the four dimensions, separately considered, the mean scores of the four dimensions in descending order of strength (or degree) were as follows: the development of the quality of life of community members; development of the infrastructure, development of politics, and the administration based on the principle of good governance. (2) People with different socioeconomic-demographic backgrounds (sex, age, education, occupation, marital status, and income) differed in their opinions toward the effectiveness of the public activities administration.

**Keywords:** effectiveness, public activities, administration

## Introduction

Another measure of government performance was service that was best known. “Service Excellence” The operation of government agencies must focus on the service to make the recipient satisfied and impressed with the service that if the service was a service that was more than a normal service or as it was called. “Excellent service” would be able to make those who received the service had a great impression. And in the part of government services, it must make people very impressed, which would resulted in a stimulus for economic, social and environmental growth, and achieve goals. Therefore, in order to achieve the important goals of national development, it was important to make people be happy, to be strong and to be self-reliant, government service was an important part of public service to the people. And it was also one of the main functions that the state must follow the policy guidelines for the administration of state affairs. (The Royal Gazette, 2007)

The effective administration of public activities was of paramount importance to local administrative organizations. The organization was obligatory to work to serve the public interest and was to coordinate it’s work with other governmental agencies in the central government in the region and was to coordinate with elected representative or politicians. The administrative activities of the subdistrict municipality were under the supervision of the subdistrict municipal council.

As a rule, the subdistrict municipality was empowered or authorized by the central government to perform fourfold functions regarding the public activities. These were the following : 1) The building the infrastructure, such as building roads, the sewage system, public electricity and water supply 2) Promoting the quality of life such as establishing the child care center, the primary health care center, the local education center, and rest and relax center. 3) Keeping peace and order in the community such as preventing road accidents, preventing disaster, and providing public toilets. 4) Arranging investment activities such as making profits from natural resources and cultural resources.

The problems of the administration or management of the public activities were caused in large measure by the conflict between the local administrative organizations and the central government in that the local administrative organizations were not really free to implement their policies concerning the public activities. The organizational structure based on the bureaucratic system still impeded and impair the operation of the local administrative organization.

## Objectives

1 . To ascertain the effectiveness of the public activities administration of Hunkha Subdistrict Municipality, Chainat Province.

2 . To compare the opinions toward the effectiveness of public activities administration expressed by the people with different socioeconomic-demographic backgrounds.

## Literature Review

### Concepts about Effectiveness

Friedlander and Pickle (1968) pointed out that the effectiveness consists of the following factors:

- 1) Capability to gain profit
- 2) The extent to which the organization can produce public satisfaction
- 3) The extent of the value the organization can provide to society

Edgar H. Schein (1970) defined “effectiveness” as the capacity of the organization to serve, adapt, maintain and grow regardless of its functions.

### Concepts Concerning the Operation

Somjit Supanthesana (2003) pointed out that the “operation” has the same meaning as “risk performance”. It was about the activities of every living thing.

Factors influencing the operation included the following:

1 ) Demographics. These included: sex, age, race, economic status, social status, residence, family size and the like.

2 ) Capacity characteristics. These included: knowledge, motivation, talent, tact and so on. The capacity could be divided into two parts: physical capacity and mental capacity.

3 ) Psychological characteristics. These included: attitude, percentage, need achievement, personality and so on. Different tasks require different types of psychological characteristics.

4) Preservance. Preservance was great importance to all kinds of work. If people failed to be diligent or working hard, it was extremely difficult to finish their assigned tasks.

5) Support from the organization. To perform tasks with great success, the performers needed to receive support from the organization or the administrator of

the organization. Although the personnel characteristics were in line with the assigned tasks, the tasks could not be achieved without the organizational support.

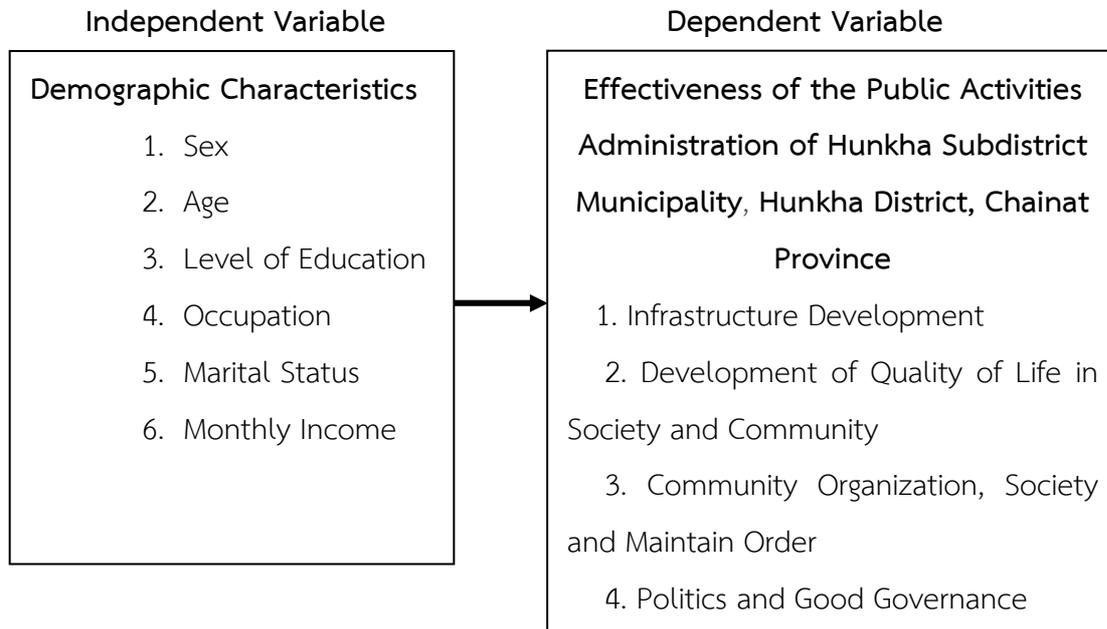
### **Definition of Public Service**

There are many definitions of public service, namely:

Public service means a service or activity provided by a state, made for the benefit public or to meet the needs of the public which was an undertaking under the management or under the control of the administrative created with the purpose of meeting the needs. The general public (Oratai Kokphon, 2009), which was to improve the quality of life for the people and create both economic and social development for the locality including the overall development of the nation with principles that were an issue for an important aspect of the provision of public services was that the provision of public services must be carried out for the benefit of the public, able to meet local needs with equality continuity and transparency in service delivery (Naratip Sriram, 2014).

**Types of Public Services:** 1) Fundamental tasks referred to the essential basic public services that all states must provide to the people, could be ignored because it was a basic security guarantee. This type of mission involved the prevention of disputes and settlement of disputes that arise, maintaining order and safety in the community and country, security and safe from outside aggression, etc., services in this manner citizens did not have to pay for the service. 2) Secondary missions referred to public services organized to enhance the quality of life and the well-being of the people, such as providing educational services, health care, transportation, communication, sports promotion, unemployment insurance, etc. by this type of public service, able to charge service fees or fees from people who came to use the service but it was not considered organize public services for profit (Prayoon Kanjanadul, 2009). It could be seen that public service was essential and essential to quality of life of the people crash a lot although the state could not provide public services to people in all parts of the country on its own, the state could entrust other sectors to provide it. The government was responsible for regulating the standards of public service. This might be done through a variety of assessments.

## Conceptual Framework



**Figure 1** Research Conceptual Framework

## Research Methodology

The population of this study was composed of 13,857 people aged 18 or over living in the area under the jurisdiction of Hunkha Subdistrict Municipality. In total 389 persons were randomly selected as the sample of the study.

The study tool was a set of self-administered questionnaires. The questionnaire contained questions having a 5-point, rating scale.

Statistics used for the analysis

1) Cronbach's alpha was used to obtain the reliability coefficient of the study tool.

2) Descriptive statistics, a t-test and an F-test were used to analyze the collected data.

## Results

1) The effectiveness of the public activities administration, holistically, was found to be at a high level. Separately, the mean scores in ranking order from high to low were as follows: development the quality of life, development of infrastructure, development of political matters, and keeping peace and order of the community.

2) Comparatively speaking, people with different personal backgrounds failed to differ in their opinions toward the effectiveness of the public activities administration.

## Discussions

1 . The effectiveness of public affairs of Hankha Sub-District Municipality, Hankha District, Chainat Province, overall in all 4 aspects was at a high level. This might be because the sub-district municipality had a standardized village water supply system and produces clean and quality tap water. There was an annual drug campaign in reducing the rate of drug addiction among youth in the community. There was a collaboration with the agency public and private organizations, conducting drills every year for disaster prevention and mitigation preparedness plans including the sub-district municipality, providing services to the people with ease fast and impressive and had implemented the development plan of every sub-district in order to truly and thoroughly meet the needs of the people. This was in line with the research of Ratchanee Nawae (2020) on the effectiveness of public service operations of the Sub-District Administrative Organization in Pattani Province. The objective was to study the level of effectiveness in public service practice and to study the operational factors affecting the Subdistrict Administrative Organization in Pattani Province. This was a quantitative research. The population consisted of personnel and officers of 92 sub-district administrative organizations in Pattani Province by using a specific method of selection. A sample of 736 people was obtained for statistical analysis and qualitative research by using questionnaires, and an interview form as a tool to collect information, and then used for descriptive analysis. The results of the study found that 1) the level of personnel opinions towards the effectiveness of public service performance of the Sub-District Administrative Organization in Pattani Province was at a high level in all aspects. When considering in descending order, they were organizational structure, budget, engagement and acceptance, leadership, materials, equipment, tools, and locations, participation, motivation, and teamwork.

2. Comparison of public affairs effectiveness of Hankha Subdistrict Municipality, Hankha District, Chainat Province, classified by sex, age, occupation, educational level, marital status and average monthly income. In response to the assumptions set, it was found that the level of public opinion towards the effectiveness of public affairs in Hankha Subdistrict Municipality, Hankha District, Chainat Province was a

statistically insignificant difference in opinion, and had no effect on the effectiveness of public affairs of Hankha Subdistrict Municipality, Hankha District, Chainat Province. This was consistent with the research of Tul Niyato (2019) on the effectiveness of service of the municipality of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province had a purpose to study the level of service efficiency of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province and to compare the service efficiency of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province, classified by personal factors. The sample group included people aged 18 years and over, 400 people. Tools used in the research as a questionnaire. The statistics used in the data analysis were percentage, mean and standard deviation, and analytical statistics, one-way variance. The results found that the effectiveness of services of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province, classified by personal characteristics found that people with different sex, age, education, occupation and length of stay, opinions on the effectiveness of services of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province, overall, no difference. People with different family status opinions on the effectiveness of services of Latsawai Town Municipality, Lam Lukka District, Pathumthani Province, differed statistically at .05.

## Suggestions

### 1. Policy Recommendations:

- 1.1 The municipality should develop the infrastructure to high quality.
- 1.2 On the quality of life enhancement, the municipality should make efforts to provide scholarship to the poor students who have good conduct.
- 1.3 On keeping peace and order of the community, the municipality should encourage the locals to take part in making plans for the maintenance of safety and the prevention of catastrophic events.
- 1.4 On the political matters and the administration based on the good governance, the municipality should use resources with cost-effectiveness and without extravagance. In addition, efforts should be made by the municipality to inculcate the energy-saving attitude in the mind of the locals.

### 2. Recommendations for future research

- 2.1 A study on the problems and guidelines for the improvement of local administrative organizations should be conducted

2.2 “Factors to the successful administration of subdistrict municipalities” should be done.

2.3 A study on the public participation in the in the operating activities of subdistrict municipalities should be initiated.

### Reference

- Chaichit Butpakdee. (2007). **The Effectiveness of Administration of the Subdistrict Administrative Organization in Bang Rakam District, Phitsanulok Province.** (Master of Political Science Thesis, Chiang Mai University).
- Chanchai Sawangsak. (1999). **Law Relating to Government Administration.** Bangkok: Nititam.
- Department of Provincial Administration. (1993). **Public Service Manual.** Bangkok: Local Printing House.
- Department of Local Administrative Promotion. (2007). **Including the Laws Related to the Governing Body Local Structural Model System Development Bureau.** Bangkok: Department of Administrative Promotion Local.
- Friedlander, F., & Pickle, H. (1968). Components of Effectiveness in Small Organizations, **Administrative Science Quarterly.** 13 (2), 289–304.
- The Royal Gazette. (2007). **Administrative Regulations Act (No. 7) B.E. 2007.** Government Gazette, 124 (55), 1-15.
- Likit Teeravaekin. (2010). **Politics and Government of Thailand.** (8th edition). Bangkok: Thammasat University.
- Naratip Sriram. (2014). **Concepts of Local Public Service Arrangement.** Teaching Document on Local Public Service Arrangement, Unit 1-7. Nonthaburi: Sukhothai Thammatirat University Press.
- Nattapan Kaejornnan. (2002). **Human Resource Management.** Bangkok: SE-ED. Office of Registration Administration. (2018). **Public Information,** Department of Local Administration, Ministry of Interior, November 2018.
- Prayoon Kanchanadul. (2006). **Administrative Law.** Phra Nakhon: Thammasat University Printing House.
- Prakan Maksab. (2008). **The Effectiveness of Management of Subdistrict Administrative Organization in Kuan Kalong District, Satun Province.** (Master of Public Administration Thesis, Khon Kaen University Graduate School).

- Ratchanee Nawae. (2020). The Effectiveness of Public Service Operations and Study the Factors Perform Work that Affects the Sub-District Administrative Organization in Pattani Province. **Academic Journal of Pathum Thani University**. 2(2), 394-410.
- Saengchai Deemak. (2009). **Operation of Sithat Subdistrict Administrative Organization, Sithat District, Udon Thani Province**. (Master of Public Administration Thesis. Department of Public Administration, Maha Sarakham Rajabhat University).
- Schein, Edgar H. (1970). **Organizational Psychology**. New Jersey: Prentice-Hall.
- Somjit Supannatat. (1999). **Behavior and Change**. Teaching Documents for Health Education (Unit 1-7). ( 16th edition) . Nonthaburi: Sukhothai Thammathirat University.
- Tul Niyato (2018), The Effectiveness of the Service of the Municipality of LatSawai Towne Minicipality, Lamlukka District, Pathumthani Province. **Pathum Thani University Academic Journal**, 11 (2). 142-152.

## ESG & ESG INVESTING

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### Abstract

This paper is about ESG and ESG investing; the Environmental, Social, and Governance standards and practices being adopted by investors in order to get corporations to clean-up their operations, reduce their greenhouse gas emissions (GHG) and in the process mitigate the negative impacts of climate change brought about increasingly by human activity since the rise of industrialization and the use of fossil fuels. This paper will begin by presenting the current status of global warming, present an example of many like-minded industries whose practices have and continue to exacerbate the problems, and finally highlight the exemplary efforts of one company, WaterCloud (Singapore) Pte., Ltd., who seeks to provide a positive impact through the use of ESG principals involving the investment in planting high numbers of high growth-rate proprietary WaterCloud Paulownia GenomeX50™ Super Trees (WP GX50™) whose carbon sequestration is unparalleled. In addition to this environmental aspect, WaterCloud is pursuing the Social aspect of ESG by partnering with the Beaumont Partnership Foundation and the Beaumont Ruampattana School in Chaiyaphum, Thailand to provide educational resources in a rural area where these resources have not existed before.

**Keywords** : Investing, ESG, ESG Investing Institutions,

### Introduction What Are the Triggers for ESG?

In a report published March 15, 2021, and updated in August 2021, the National Oceanic and Atmospheric Administration (NOAA) has this to say about global warming (Lindsey & Dahlman, 2021):

Earth's temperature has risen by 0.14° F (0.08° C) per decade since 1880, and the rate of warming over the past 40 years is more than twice that: 0.32° F (0.18° C) per decade since 1981.

"2020 was the second-warmest year on record based on NOAA's temperature data, and land areas were record warm." ("Climate Change: Global Temperature | NOAA Climate.gov")

Averaged across land and ocean, the 2020 surface temperature was 1.76° F (0.98° Celsius) warmer than the twentieth-century average of 57.0°F (13.9°C) and 2.14°F (1.19°C) warmer than the pre-industrial period (1880-1900).

Despite a late year La Niña event that cooled a wide swath of the tropical Pacific Ocean, 2020 came just 0.04° Fahrenheit (0.02°Celsius) shy of tying 2016 for warmest year on record. ("Climate Change: Global Temperature | NOAA Climate.gov")

The 10 warmest years on record have occurred since 2005.

From 1900 to 1980 a new temperature record was set on average every 13.5 years; from 1981–2019, a new record was set every 3 years.

The reasons for global warming and the negative impacts being felt globally, generally regarded as climate change, are no longer debatable. Human activity, increasingly through industrialization and the burning of fossil fuels, coupled with environmental degradation on industrial scales, is to blame.

One industry contributing to global warming, climate change, and environmental destruction is the toilet paper industry ("What's at stake", 2022). One of the leaders in this industry is Proctor & Gamble (P&G), the maker of Charmin brand toilet paper. P&G is and has been clear-cutting Canada's boreal forest to obtain virgin pulp and in doing so has between 1996 and 2015 played a role in clear-cut logging more than 28 million acres of Canada's boreal forest, an area approximately the size of the U.S. state of Ohio (Skene & Vineyard, 2019). This practice releases hundreds of millions of tons of climate-altering carbon into the atmosphere every year. Carbon that was previously stored in the forest. If that weren't enough, these activities threaten the ways of life of hundreds of Indigenous communities while also devastating iconic wildlife species (Skene & Vineyard, 2019). The bottom line is that Proctor & Gamble is helping to drive the destruction of one of the last great forests on earth, all for the sake of producing the world's biggest toilet paper brand while literally flushing Canada's ancient boreal forest down the toilet.

Attempting to spin, or greenwash, the role they play in environmental destruction and the subsequent contribution to global warming and climate change, P&G presents the following arguments ("Can You Spot the Toilet Paper Industry's Greenwashing?", 2022):

- P&G replants a new tree for every one that is cut down
- Sustainable alternatives to virgin-forest tissue pulp aren't available or affordable
- Toilet paper stores carbon dioxide, just like the trees in a forest
- Clearcutting the boreal forest in Canada is legal
- Most of the toilet paper on store shelves is made entirely from newly cut forests

Rebutting P&G's claims is not difficult: replanting a new tree for every one

Rebutting P&G's claims is not difficult: replanting a new tree for every one that is cut down takes decades to regrow and results in something more akin to a Christmas tree farm, lacking the vibrant and diverse ecosystem of a pristine ancient forest formed over millennia and one that sustains wildlife and indigenous ways of life. As for sustainable alternatives to virgin-forest tissue pulp not being available or affordable, there are a number of alternative and sustainable toilet paper brands that don't require the harvesting of ancient forests. These alternatives instead rely on recycled materials, bamboo, and even wheat straw, and are similarly priced. As for the argument that toilet paper stores carbon dioxide, toilet paper degrades quickly releasing any CO<sub>2</sub> while the trees that were cut down are no longer available to absorb it.

Considering the argument that clearcutting Canada's boreal forest is legal, that's a fact thanks to Canadian policy makers. Furthermore, the logging done within the traditional territories of Indigenous Peoples is often done without their input regarding their own resources. In the process, the Canadian government's approval to clear-cut the boreal forest overlooks threats to the climate and imperiled wildlife. Finally, the claim that most of the toilet paper on store shelves is made entirely from newly cut forests hardly makes it right, nor is this claim accurate. P&G, among others, uses its clout to keep consumers in the dark about the real impacts of their products while crowding out more sustainable alternatives. When put all together, P&G's production of toilet paper together with the complicity of the Canadian government, represents the worst in irresponsible stewardship of natural resources and does not begin to live up to the spirit of ESG.

The New Climate Institute's 128-page report titled "Corporate Climate Responsibility Monitor 2022 - Assessing the Transparency and Integrity of Companies'

Emission Reduction and Net-Zero Targets” indicates that companies around the world are facing growing pressure from a growing range of stakeholders to take responsibility for environmental impacts resulting from their activities. This growing pressure from stakeholders is causing companies of all shapes and sizes to generate climate pledges with the aim of reaching targets that significantly reduce or eliminate contributions to global warming. While these climate pledges on their face may grab headlines, these pledges are often ambiguous and more limited than they might appear. Furthermore, due to the fragmented and general lack of regulatory oversight at both the national and sectoral levels, it is more difficult than ever to distinguish real climate leadership from unsubstantiated greenwashing (“Corporate Climate Responsibility Monitor”, 2022). The report assesses 25 major multinational companies with reported combined revenues of USD 3.18 trillion in 2020 and representing nearly 10% of the total revenues of the world’s largest 500 companies. In 2019, these 25 companies’ greenhouse gas (GHG) emissions accounted for approximately 2.7 GtCO<sub>2</sub>, or roughly equivalent to 5% of the world’s total GHG emissions.

### Objectives

1. This paper covers the examples and reason why ESG was formulated and how a company has created a true ESG Ecosystem.

### Literature Review

Environmental, Social, and Governance (ESG) Criteria (2021, March 5). Investopedia. Retrieved February 19, 2022,

Corporate Climate Responsibility Monitor 2022 - Assessing the Transparency and Integrity of Companies' Emission Reduction and Net-Zero Targets (2022). New Climate Institute. Retrieved February 17, 2022

Atmosphere, The (2021). National Aeronautics and Space Administration. Retrieved February 19, 2022

Skene, J. & Vineyard, S. (2019, February 20). The Issue with Tissue: How the U.S. Is Flushing Forests Away. NRDC. Retrieved February 17, 2022

What's at stake - We're letting Canada's boreal forest be flushed down the toilet—literally (2022). NRDC. Retrieved February 17, 2022,

## Conceptual Framework

As is often the case, however, no single company may pass every test and investors are forced to decide what's most important. This tradeoff has been thought to limit the number of eligible companies for the purpose of investing and has therefore also had the potential to limit the investor's profit potential, such as in the case of a "bad" company's share price performing favorably while remaining untouchable by the conscientious investor. One thing that is noteworthy beyond the ethical considerations of ESG investing is the practical matter by which investors applying ESG standards may be able to avoid companies whose operational practices signal potential risk factors ("Environmental, Social, and Governance (ESG) Criteria", 2021).

As ESG investing has been gaining momentum, not only have investors sought to capitalize while doing the right thing by investing in corporations practicing ESG, but entrepreneurs have also sought to do their part by building companies and subsequent operations that also do the right thing in line with ESG standards and practices. One such company leading the way in Asia with its efforts to provide solutions is WaterCloud International (Singapore) Pte., Ltd., who together with its network of international experts and partners have an ongoing acquisition plan of more than 4000 hectares in Thailand, Malaysia, Indonesia, and Okinawa for the purpose of growing and cultivating the WaterCloud Paulownia GenomeX50TM Super Trees (WP GX50TM), developed by agricultural scientific, expert forestry technical and scientific team at WaterCloud International ("WaterCloud International Project Profile", 2012).

The acquired land's ecosystems will each be able to yield between USD 8 million and up to USD 1 billion within 5 to 7 years based on WaterCloud's targets and goals which is to reach 3.4 million trees on 2000 hectares by 2023 and 6.4 million trees on 4000 hectares by 2028. This will give WaterCloud a biological asset portfolio on the balance sheet with a potential valuation of USD 1.7 billion. The net CO<sub>2</sub> sequestered will be approximately 5 million Carbon equivalent per metric Tons (Ceq/T) with a current market value of USD 500 million per annum from year 3 onwards. By using AI-based science and technology WaterCloud will be able to achieve a true Net Zero, a 100% carbon reduction expectation, in their forests by 2030.

WaterCloud is a Digital Transformation Technology company who has put together a comprehensive AgriTech business strategy to develop Carbon

Sequestration methods for Asia. Along with their Global Strategic Partners Wisewise AG, Switzerland and Fondazione LINKS, Italy, WaterCloud's team of experts is comprised of engineers and agricultural scientists from Australia, Switzerland, and Italy, and international foresters with 900 years of combined expertise. As a Singapore based multi-disciplinary technology company, WaterCloud has developed a global strategy to reduce GHG by merging traditional forestry practices with advanced science and technology including Artificial Intelligence (AI). Their technology includes next generation robotics, micro-mass spectrometry, and gas chromatography to measure their biological assets to a resolution of 1 micron. A world first. In addition, WaterCloud's use of advanced technology applications to manage their biological assets form part of the digital transformation process which they bring to the Carbon Sequestration and Reforestation industry.

### **Research Methodology**

We used two companies as a comparison one which was a pseudo method whilst the other a true ESG principles and adaptation of every compliant process in their ecosystem leading to a very high level of compliance.

### **Discussions**

As is often the case, however, no single company may pass every test and investors are forced to decide what's most important. This tradeoff has been thought to limit the number of eligible companies for the purpose of investing. and has therefore also had the potential to limit the investor's profit potential, such as in the case of a "bad" company's share price performing favorably while remaining untouchable by the conscientious investor. One thing that is noteworthy beyond the ethical considerations of ESG investing is the practical matter by which investors applying ESG standards may be able to avoid companies whose operational practices signal potential risk factors ("Environmental, Social, and Governance (ESG) Criteria", 2021).

### **Suggestions**

Companies can adopt the methodology created by the WaterCloud company. It sets the gold standard for compliance and provides a good baseline for any financial institution or investors to invest in.

## Reference

- Watercloud Corporate Summary 2022
- Atmosphere, The (2021). **National Aeronautics and Space Administration**. Retrieved February 19, 2022, from <https://www.grc.nasa.gov/www/k-12/airplane/atmosphere.html>
- Can You Spot the Toilet Paper Industry's Greenwashing? (2022). **NRDC**. Retrieved February 17, 2022, from [https://issuewithtissue.org/Corporate Climate Responsibility Monitor \(2022 - Assessing the Transparency and Integrity of Companies' Emission Reduction and Net-Zero Targets \(2022\).](https://issuewithtissue.org/Corporate Climate Responsibility Monitor (2022 - Assessing the Transparency and Integrity of Companies' Emission Reduction and Net-Zero Targets (2022).) (“**Corporate Climate Responsibility Monitor 2022**”) **New Climate Institute**. Retrieved February 17, 2022, from <https://newclimate.org/2022/02/07/corporate-climate-responsibility-monitor-2022/>
- Environmental, Social, and Governance (ESG) Criteria (2021, March 5). **Investopedia**. Retrieved February 19, 2022, from <https://www.investopedia.com/terms/e/environmental-social-and-governance-esg-criteria.asp>
- IAS 41 Agriculture (2021). **IFRS Foundation**. Retrieved February 19, 2022, from <https://www.ifrs.org/issued-standards/list-of-standards/ias-41-agriculture/>
- Lindsey, R. & Dahlman, L. (2021, March 15). **Climate Change: Global Temperature**. NOAA. Retrieved February 17, 2022, from <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>.
- Skene, J. & Vineyard, S. (2019, February 20). "**The Issue with Tissue: How the U.S. Is Flushing Forests Away**." (“The Issue with Tissue: How the U.S. Is Flushing Forests Away”) **NRDC**. Retrieved February 17, 2022, from <https://www.nrdc.org/experts/jennifer-skene/issue-tissue-how-us-flushing-forests-away>
- WaterCloud ESG Program for Asia, Country Profile - Thailand (2022, February 11). **WaterCloud International** (Singapore) Pte., Ltd.
- WaterCloud International Project Profile (2012, December). **WaterCloud International** (Singapore) Pte., Ltd.
- What's at stake - We're letting Canada's boreal forest be flushed down the toilet—literally (2022). **NRDC**. Retrieved February 17, 2022, from <https://www.nrdc.org/stop-procter-gamble-flushing-away-our-forests>.

## GUIDELINES STRUCTURE FOR RESEARCH CREATIVE IN ARTS

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### Abstract

This research aims to find a structure and process approach to research creativity in art. The research uses three processes as analysis from the document, expert interviewing, and synthesizing the results to be a process approach, have the result as follow:

The art research and the academic documents were analyzed related to requesting academic promotion from various art universities, amounting to 5 places. The researcher interviewed the experts such as the artists, the researchers, and the instructor who has outstanding works amounting to 5 people—and synthesized the research of creativity in Arts, based on three principles: idea, form, and meaning. Along with questions for Art creators to think of answers before creating works.

**Keywords:** structure, approach, process, creative research.

### Introduction

Art, whether presented in any way, starts with what is in a mind or concept. In Perceptual Art, the concept is just the beginning of shaping, presenting the feelings, emotions, beauty, or intellectual expression. This will expand the audience's imagination depending on the power of the art of that work. Conceptual art is the most important concept. Shapes are defined by materials, fine objects, nature, culture, and environment. Events as well as other human activities, etc. It's used to represent the concept and continuously unfold and grows the audience's imagination. Perceptual art emphasizes a subjective leading to the imagination, and Conceptual art emphasizes an objective leading to the imagination.

The concept, the inspiration of shapes, materials, stories, environments, and beauty, is just the lure of art content hidden in the depths of the artist's mind. Which is something in the human mind, but they are not aware of it. It appears as the factual that can touch the audience's minds called emotional art, and some of them

can touch a deep mind called intellectual art. Perceptual Art will stimulate and develop the audience's imagination by presenting artists' ideas in Conceptual Art.

Research and Creativity have always been such natural opposites. Proposing a creative project is different from a research project. Project consideration requires specialized knowledge; creative professionals should consider or be involved. Creativity is not as important as text, but it's in the image language. Try to present what's in the artist's mind into an image. Moreover, it is most important to present the artist's old work to carry out the project successfully. Anyone can submit a project on the same topic because ten artists will create different works on the same topic. Every piece of work, every completed set, will be a unique creation. (Professor Kietikhunchalood Nimsamer)

At present, the problem of the research process and the creation of art is an interesting issue, and there is a lot of debate as to how they are similar or different, in many aspects from Thai and international artists, but not a conclusion yet because these two sciences have different natures. That is to say, research is a process of studying new knowledge systematically and rationally. As for the creative in art has a process of studying and creating new things, or improvement from the original to be unique. The process of acquiring new knowledge may not necessarily be systematic; it is often a direct expression of instinct without reason. And the acquisition of new knowledge may be due to accidental discoveries. From the differences of these two disciplines, over the past 2-3 decades in foreign countries, there has been a wide discussion of research and artistic creation. The essence of the debate is the academic nature of practice and theory in the visual arts, including an understanding of research in artistic practice. This can be summarized into three major issues as follows: (Gray and Malins, 2004) 1. Practicing art creation is already research in itself. 2. Creativity is comparable to research. 3. Art practice can never be research.

Frayling (1993, p 4) said, "Research through the arts is a record effort, to communicate the results of creative art and reflect on every process and then analyze, synthesize, become knowledge that can be disseminated and understood. It would be beneficial to expand the rules and traditions of artistic Research." Therefore, at any level of art education, the student or the creator must explain the essence of concepts, theories, and processes of creative creation. Academic principles that people in the art society accept will lead to the search for common ways that will drive creative art.

### Research objective

To find a structure, approach, process, and research process creative in art.

### Literature review

Research: Christopher Frayling (1993 p. 4 cited in Apichat Phonprasert, B.E. 2554 p. 95). Discuss that the word research in the Oxford English Dictionary has two definitions of research as "research" spelled with "r" (lowercase) and "Research" spelled with "R" (uppercase). For example, "research" spelled with a lowercase "r" is meant in the manner of a logical search for what appears to exist, which Fraying said is different from the nature of artistic creation, that is often expressive directly from instinct without reason. This can be seen from Picasso's words in 1923 that "A painter is a maker, not a researcher. In Picasso's mind, research is meaningless, but painting is more valuable. And for example, "Research" spelled with an uppercase "R" is often meaning used in the sense of innovation. Both as part of the processes and the products, which he sees as meaning that art creation can be classified as research. Fraying has several instances showing the possibility of using research processes to create art since the Renaissance era, such as Leonardo da Vinci, British artist George Stubbs, and John Constable. Fame in the 18th-19th centuries, respectively, encourages artists to study the muscles systems of humans, animals, and natural phenomena before creating. Preecha Thaothong (tape: 29 June B.E. 2556) compared the differences between research and creativity in the Art seminar at the National Research Fair, Faculty of Philosophy in collaboration with the National Research Council of Thailand. Subject: Analysis of concepts, forms, compositions, techniques, methods, and factors in visual arts in "Cultural Triangle to Lighting of Suwannaphum."

**Table 1:** Compares of Research and the Creative in Art according to the views of Preecha Thaothong.

Research	Creative in Art
1. Fact	1. Imagination
2. Objective	2. Subjective
3. Knowledge	3. Emotion
4. Reality	4. The truth of the creative artist
5. Theory	5. Inspiration

Research	Creative in Art
6. Research process	6. Quest of Analysis/Synthesis
7. Consciousness	7. Without consciousness
8. Research scope	8. The boundlessness of imagination
9. Reason	9. Intuition
10. Measure results with innovative objects	10. Measure result with mind
11. Read easily, can get facts and knowledge from research.	11. Access to the higher spirituality of Art.

Table 1 compares the differences between Research and Creative in art according to the views of Preecha Thaotong, a national artist. (Painting B.E.2552), it can be seen that the huge difference.

Christopher Frayling (1993, p. 4) said that “Research through the arts is a record effort to communicate the Creative results in art and reflect on every process. Then analyze and synthesize the knowledge that can be disseminated to make it understandable, which would be beneficial in expanding the rules and traditions of artistic research.

John Constable said, “Painting...is scientific as well as poetic” (Apichart Ponprasert B.E. 2554 p. 96)

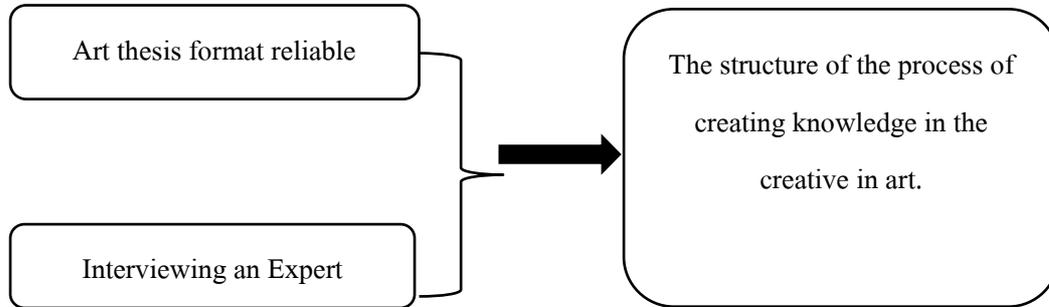
Uthumphon Chamornman (tape: 4 June B.E. 2551) said that “Research means to acquire new knowledge, reliably or accepted in that science; such as the science of art, what received techniques. Or use an artist to say that this picture is beautiful. In art-science, it can accept research.

Somwang Phithianuwat (tape: 5 June B.E. 2551) said, “A research that requires humans as equipment to tell the beauty of art. Human beings are the best tool to reach aesthetics. So, the problem is how different human beings can have a consensus opinion, which is a complicated problem. But the truth has a few ways, such as joining a group and being accepted as a member of that group. This method must be careful that the researcher may forget there’s role and responsibilities as the researcher.

As Picasso said, "The painter is the creator, not the searcher or researcher, research is meaningless for Painting, but discovery is more valuable." The discovery was a study process. For example, in the painted "Guernica," he was drawn to reflect the tragedy of the 1937 German - Italian war bombing of Guernica. Picasso reflects on

the horrors of war, people in pain, animals moaning, and buildings destroyed by fire. Using both Cubism and Surrealism styles, it can be seen that both the form and content of Guernica's paintings arise from elements of the research process.

### Research conceptual framework



**Picture 1:** Research conceptual framework

### Researching procedure

In this research, the researcher proceeded with the following steps:

1. Document data collection

- 1.1 Study format and structure of art thesis, from different universities with major in fine arts.

- 1.2 Study the documents related to promotion for an academic position, from different universities with have major in fine arts.

2. Interviews with famous artists, researchers who have outstanding works. Select from those related to teaching at the higher education level, or those who have passed promotion for an academic Arts.

3. Bring the results of the study to analyze and create a process for researching creative arts.

### Researching result

1. Collecting the format of the writing structure of the art thesis and the documents related to requesting academic promotion from 5 Art Universities such as, Silpakorn University, Burapha University, Chiang Mai University, Mahasarakham University and Bangkok Thonburi University.

2. Interviewing 5 experts such as the artists, the researchers, and the instructor who has outstanding works such as, Professor Pricha Thaothong, Asst.

Professor Dr. Pramote Danpradit, Asst. Professor Orawan Banjongsilp, Asst. Professor Kowit Khanthasiri and Asst. Professor Dr. Sariwan Watawattana.

3. Analysis and develop the process of researching creative in Arts

**Discuss the results**

There are 3 main forms of knowledge development guidelines as follows:

**1. Pure Practice** (Creative of academic arts) is a creative emphasis on the practice results. Focus on the practice, the experience, and the results.

**2. Practice-led or Practice-based** (Creative Arts – Research) is creative by allowing practice as a tool to lead to new knowledge. It may emphasize knowledge gained from educational and creative processes. That expresses the uniqueness of the work (originality) or the development of knowledge in creative practice in a field (If concluded that it is creative, so it’s creative work, and if concluded that the research so it’s research.)

**3. Research/Theoretical Practice** (art research) is a systematic study or research using research methods to obtain information and answers or a collective conclusion that will lead to academic advancement or facilitate the application of that academic.

From the 3 approaches, it leads to the structure of the origin of art creation, academic, creative in art-research, and art research as in Table 2.

**Table 2** The structure of the origin of the Creative in artistic.

Idea	<ul style="list-style-type: none"> <li>- Inspiration</li> <li>- Concept</li> <li>- Belief attitude</li> <li>- Interpretation</li> </ul>	<p>What content to doing?</p> <p>What is important about the content and why?</p> <p>How the reason of the content to doing and why?</p> <p>How the reason of the content reference?</p> <p>How the outstanding of the content and what is the purpose?</p> <p>What is the scope of the content?</p>
Format	<ul style="list-style-type: none"> <li>- Format</li> <li>- Story line</li> <li>- Expression</li> </ul>	<p>How the format and method of content?</p> <p>What is the story behind the content?</p> <p>What kind of techniques and procedures do you have to do with content?</p>
Meaning	<ul style="list-style-type: none"> <li>- Content</li> </ul>	<p>Matters that need to be summarized to have a conclusion and what are the goals?</p>

### Suggestion

1. Academic and cultural studies should be further detailed in separate areas of the arts.
2. The public should be published to create learning opportunities for those interested in creative arts.

### References

- Frayling, C. "Research in Art and Design". Royal College of Art Research, 1 (1)
- Gray, C. and Malins, Julian. (2004). *Visualising Research: A Guide to the Research Process in Art and Design*. Hants, Burlington: Ashgate.
- Hodg, A. N. (2008). *The History of Art*. W. Foulsham & Co, Ltd, : China. Phaidon. (2000) *The Art Book*. China: Phaidon Press Limited.
- Charnnarong Pornrungroj. (B.E.2543). *Research in Arts*. Bangkok: Chulalongkorn University Press.
- Chaiyos Chantratit and Friend (B.E.2550). *Creating a process for researching creative in arts* Faculty of Fine Arts Chiang Mai University. Chiang Mai.
- Taweedate Jiewbang (B.E.2549). *Creative of Arts 2<sup>nd</sup>* Published Bangkok : Odeonstore.
- Precha Taothong (B.E.2556). An analysis of concepts, styles, compositions, techniques, methods and factors in visual arts. "Triangle Culture to Lights of Suwannabhumi". Miracle Grand Convention Bangkok Hotel (Interview).
- Precha Taothong (B.E.2557). *Guidelines for research and development of knowledge in creative arts and academics*. Journal of the Association of Researchers, Year 19<sup>th</sup>, No.2, May- August 2014 p.5-11. Bangkok Thonburi University
- Format of writing research articles for academic journals*. Bangkok Thonburi University (B.E.2564). Chiang Mai University. *A guide to writing a thesis outline topic*. Chiang Mai University, (B.C.2562).
- Burapha University. *Thesis and Dissertation Handbook Graduate level*. Burapha University. (B.C.2562).
- Maharakham University. *Thesis writing manual*. Maharakham University, (B.E.2564).
- Silpakorn University. *Graduate Student Handbook*. Silpakorn University, (B.E.2558).
- Samaphorn Klaiwichian. (B.E.2556). *Creative research on art. A case study of "Creating Paintings. Mixed media: "Fear of Life"*. Academic journal architecture art Naresuan University, Year 4<sup>th</sup>, No.1, April – (B.E.2556). September 2013, p. 115-125. Somwan Pitayanuwat (5<sup>th</sup> June B.E.2556). *Narrative "Social Science Research"*. Boromrajakumari Building Chulalongkorn University.

Dr.Apichat Ponprasert (Artist) (B.E.2554). *Air and Research*. Fine Art. 9 (2) : 95-97.

Uthumporn Jamorman. (ผ .ป ป .) Narrative “*Concept and Research methods*”.

Boromrajakumari Building, Chulalongkorn University. (Interview).

## KHLUI; THE RECORDER OF SOUTHEAST ASIAN INSTRUMENT

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### Abstract

The research objectives are: 1. To study the development of recorder and 2. To study the recorder in Southeast Asian countries.

Research method is qualitative research; document study combines with fieldwork by interviewing the key informant.

Research findings were: 1. The recorder is a wind instrument of the whistle flute dated from the 8<sup>th</sup> century and had improved in 14<sup>th</sup> century. In Baroque, the repertory one is exclusively for treble recorder (called flute at that time). The recorder achieved great popularity in the sixteenth and seventeenth centuries, it reached into courts. There were many changes in the construction of recorders took place in 17<sup>th</sup> century. After the mid-18<sup>th</sup> century, the instrument was obsolete until its modern revival. The recorder revived around the turn of the twentieth century by early music enthusiasts for used exclusively 2. The recorder in Southeast Asia were throughout the region; three kinds of *khloi* of Thailand, two kinds of *palwei* of Myanmar, several kinds of *suling* of Indonesia. These instruments were tuned bases on the local music system and used to perform with ensemble and solo performance.

**Keywords:** recorder, history, khloi, Southeast Asia

### Introduction

Recorder is a kind of wind instrument found trough out the world appears in an end blown flute shape unlike regular flute because it does have air divider for sound production. Recorder has been called variety by local people and Thai people calls this instrument “khloi”. Khloi is easy to carry, having nice clear sharpen sound that can hear from faraway place, it is easy to make by using local material. Khloi or recorder found in many countries in Southeast Asia, so that the researcher want to know this instrument by doing research.

## Objectives

The objectives of this research were:

1. To study the development of recorder.
2. To study the recorder in Southeast Asian countries.

## Conceptual Framework

Concept of study was to review literature to know the background, history and development of the recorder and the Thai khlui, then interview the Thai music expert to know the deeper information on Thai khlui and making final conclusion of the knowledge as shown in the diagram below.

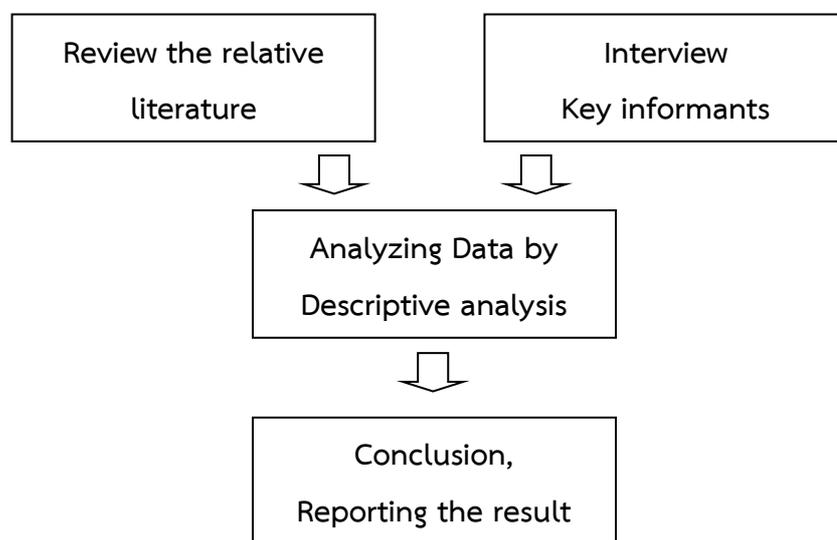


Figure 1 Conceptual Framework

## Research Methodology

### 1. Introduction

This is documentary research to know information of the recorder in general and interviewing the key informant whom keen on Thai music, then generate and analyze the data to make conclusion.

### 2. Type of Research

This is a qualitative research method; document study combines with fieldwork by interviewing the key informant.

### 3. Scope of research

The scope of study focuses only on 1) general knowledge of the recorder and 2) the knowledge on Thai recorder called “khloi”.

#### **4. Research tools**

Research method be used in this research was an interviewing form; researcher used the opened end questions to interview the key informant.

#### **5. Processes of working**

Processes of working are as follow.

5.1 Review the related literature

5.2 Interviewing the key informant.

5.3 Analyzing the data got from both literature and key informant

5.4 Conclusion and report the research result.

#### **6. Research method**

This research is a qualitative method consists of documents study and fieldwork to interview the key informant whom as instructor if Faculty of Music, Bangkokthonburi University

#### **7. Data analysis**

The data analysis to be used was a descriptive analysis.

### **Results**

The results of research were as following:

#### **1. The development of recorder**

##### **1.1 Ancient time**

The recorder is a wind instrument of the whistle flute, closely related to the flageolet. In the old day it was called duct flute with having a long history as in Iron Age specimen, made from a sheep bone, exists in Leeds City Museum. L.E. McCullough notes that the oldest surviving whistles date from the 12th century, the "Players of the feadan" are mentioned in the description of the King of Ireland's court found in Early Irish law dating from the 7th and 8th centuries A.D.

The Tusculum whistle is a 14-cm whistle with six finger holes, made of brass or bronze, found with pottery dating to the 14th and 15th centuries; it is currently in the collection of the Museum of Scotland. One of the earliest surviving recorders was discovered in a castle moat in Dordrecht, Netherland in 1940, and has been dated to the 14th century. It is intact, though not playable. A second more or less intact 14th century recorder was founded in a latrine in northern Germany; other 14th-century examples survive from Esslingen in Germany and Tartu in Estonia. There is a fragment of a possible

14th-15th-century bone recorder in Rhodes in Greece; and there is an intact 15th-century example from Elblag in Poland.

The recorder is a 14<sup>th</sup> century improvement upon earlier kindred instruments. The German theorist Sebastian Virdung (1511) and the Italian instrumentalist Silvestro Ganassi (1535) wrote the first instruction books. In Baroque, the repertory one is exclusively for treble recorder (it is called flute at that time). After the mid-18th century, the instrument was obsolete until its modern revival

Most recorders made since their revival in 1919 by the English man named Arnold Dolmetsch, the instrument maker follow the early design in 18<sup>th</sup> century, Baroque period. The cylindrical head joint is partly plugged to direct the wind against the sharp edge below, the plug being known as the block, or fipple. The body tapers, and its lowest part is usually made as a separate foot joint which has seven finger holes and one thumbhole. Often the lowest two holes are arranged as a pair, so that when one is left open it produces the semitone above the whole tone made when both are covered. The upper register, at the octave, is obtained by “pinching” the thumbhole (flexing the thumb to make a narrow opening above the thumbnail). Larger recorders may have one or more keys. Most recorders are made in several sizes: Descant (soprano) in c<sup>2</sup>, Treble (alto) in f, Tenor in c<sup>1</sup>, Bass in f (the note names refer to the lowest note; c<sup>1</sup> = middle C) <https://www.britannica.com/art/recorder-musical-instrument>

The whistle flute, duct flute, any of several end-blown flutes having a plug (or block) inside the tube below the mouth hole, forming a wind-way that directs the player’s breath alternately above and below the sharp edge of a lateral hole. This arrangement causes the enclosed air column to vibrate. Instruments using the fipple-flute principle include one or two-note whistles, recorders, flageolets, and the flue pipes organ. The flageolet differs from the recorder by having fewer finger holes.

Encyclopedia Britannica <https://www.britannica.com/art/fipple-flute>

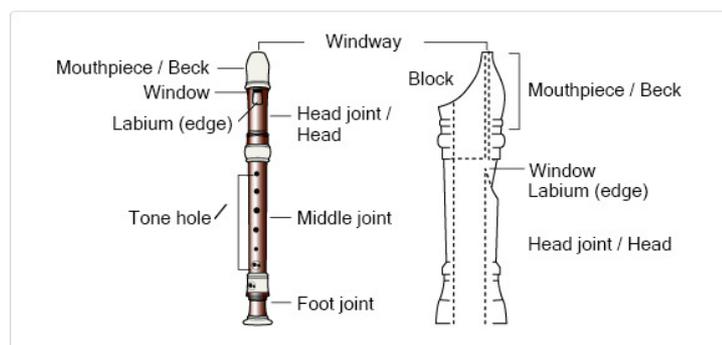


Figure 2 Part of recorder

## 1.2 Renaissance Period

The recorder achieved great popularity in the sixteenth and seventeenth centuries. This development linked to the fact that art music (as opposed to folk music) was no longer the exclusive domain of nobility and clergy. The advent of the printing press made it available to the more affluent commoners as well. The popularity of the instrument also reached the courts, however. i.e., at Henry VIII's death in 1547, an inventory of his possessions included 76 recorders. There are also numerous references to the instrument in contemporary literature

## 1.3 Recorders in Baroque

There were several changes in the construction of recorders took place in the seventeenth century, there were several changes in the construction of recorders took place in the seventeenth century, as opposed to the earlier *renaissance* recorders. These innovations allowed the baroque recorders to play two full chromatic octaves of notes, and to possess a tone which was regarded as "sweeter" than that of the earlier instruments.



**Figure 3** Baroque Recorders



**Figure 4** Full set of recorders

In the eighteenth century, rather confusingly, the instrument was normally referred to simply as Flute (Flauto) - the transverse form was separately referred to as Traverso. In the 4th Brandenburg Concerto in G major, J.S. Bach calls for two "flauti d'echo." The musicologist Thurston Dart mistakenly suggested that it was intended for flageolets at a higher pitch, and in a recording under Neville Marriner using Dart's editions it was played an octave higher than usual on soprano recorders. An argument can be made that the instruments Bach identified as "flauti d'echo" were

echo flutes, an example of which survives in Leipzig to this day. It consisted of two recorders in  $f$  connected together by leather flanges: one instrument was voiced to play softly, the other loudly. Vivaldi wrote three concertos for the "flautino" and required the same instrument in his opera orchestra. In modern performance, the "flautino" was initially thought to be the piccolo. It is now generally accepted, however, that the instrument intended was a recorder with lowest note  $d_5$ .

The decline of the recorder: The instrument went into decline after the 18<sup>th</sup> century, being used for about the last time as an other-worldly sound by Gluck in his opera *Orfeo ed Euridice*.

#### **1.4 Recorders in Romantic era**

By the Romantic era, the recorder had been almost entirely superseded by the flute and clarinet. Nonetheless there were probably more works (ca 800) written for the recorder during the nineteenth century than in all the preceding centuries: the instrument simply sprouted keys and changed its name, being known as the 'csakan' or "flute douce."

#### **1.5 Modern revival of recorder**

The recorder revived around the turn of the twentieth century by early music enthusiasts but used exclusively for this purpose. It was considered a historical instrument. Even in the early twentieth century it was unusual that Stravinsky thought it is a kind of clarinet, which is not surprising since the early clarinet was, in a sense, derived from the recorder, at least in its outward appearance.

The eventual success of the recorder in the modern music era is often attributed to Arnold Dolmetsch in the United Kingdom and various German scholar/performers. Whilst he was responsible for broadening interest beyond that of the early music specialist in the UK; Dolmetsch was far from being solely responsible for the recorder's revival. On the Continent his efforts were preceded by many musicians at the Brussels Conservatoire, and also by the performances of the Bogenhausen Künstlerkapelle (Bogenhausen Artists' Band) based in Germany. Over the period from 1890-1939 the Bogenhausers played music of all ages, including arrangements of classical and romantic music. In Germany, the work of Willibald Gurlitt, Werner Danckerts and Gustav Scheck proceeded quite independently of the Dolmetsches.

Among the influential virtuosos who figure in the revival of the recorder as a serious concert instrument in the latter part of the 20<sup>th</sup> century are Frans Brüggen, Hans-Martin Linde, Bernard Kranis, and David Munrow. Brüggen recorded most of the landmarks of the historical repertoire and commissioned a substantial number of new works for the recorder. Munrow's 1975 double album *The Art of the Recorder* remains as an important anthology of recorder music through the ages. Modern composers of great stature have written music for the recorder, i.e., John Tavener, Paul Hindemith, Luciano Berio, Michael Tippett, Benjamin Britten, Leonard Bernstein, Gordon Jacob, and Edmund Rubbra.

It is also occasionally used in popular music, including that of groups such as the Beatles, the Rolling Stones, Led Zeppelin, and Jimi Hendrix. Some modern music calls for the recorder to produce unusual noises, rhythms and extended technique effects, by such techniques as flutter-tongueing and overblowing to produce multi-phonics. David Murphy's 2002 composition "Bavardage" is an example, as is Hans Martin Linde's *Music for a Bird*.

Among modern recorder ensembles, the trio *Sour Cream Trio* (led by Frans Brüggen), the Flanders Recorder Quartet and the Amsterdam Loeki Stardust Quartet have programmed remarkable mixtures of historical and contemporary repertoire.

## 2. Recorder in Southeast Asia

Traditional recorder in Southeast Asian countries is diverse but their structure is the same that is consists of two parts; the tube that mostly made of bamboo or hard wood; the duct or air controller that force the air to blown into the divider in order to produce the sound. The name of the recorder is called differently by local language.

### 2.1 Thailand

The recorder of Thailand is called *Khloi*: The khloi keeps its beauty and look since its ancient times, the khloi was originated in any local people of any part of the country. With a long history, the instrument had been modified to be used in any occasions, making new invention of khloi in variety types. There are four main types of Khloi, although there are also many others. The three types of Khloi, which is still popular to the present day: *Khloi phiang aw*, *Khloi lib*, and *Khloi ou*.

*Khloi phiang aw* is the most popular among all types of khloi. It has a moderate range of pitch, not too high or low. It is a reed-less aerophone with 8 tone

holes. At mouthpiece there is a solid wooden block (daak Thai: ดาก) with a small aperture instead of a reed. The dak has the diameter of the tube and usually have the length of 2 inches, and was inserted at an end of the tube. On the side of the dak there is a square-shaped hole creates the sound of the khloi called Thai: ฐ ปากนกแก้ว. The khloi has 7 finger holes and a thumb hole. The khloi phiang aw is one of the oldest woodwind instruments. Its origin could be dated back to around the first century. At present, khloi usually have a very high price, because the wood is rare. So, plastic is used to create more conventional use.

The *khloi* is tuned in seven pitch equidistant according to A.J. Ellis system which the interval of major second is around 171.4 cent and the tonic note in phiang-aw is now equivalent to Bb. (Panya Roongruang)

The Bb *khloi* is a traditional one that is used to play Thai tunes alone or with Thai ensemble, while the C Khloi is later modified to adapt the western major scale. Both types are very common. However, traditional Thai *Khloi* is slightly flatter than the ideal Bb, but well-tuned khloi also exists. The *khloi phiang-aw* is very popular and is widely used for recreational purposes.

*Khloi lib* is the smallest *Khloi* in its family. It was later invented to play along with the *khloi phiang aw* in the ensembles. It is considered as the leading instrument of a Thai band, similarly to the ranat-ek and the saw duang, because of its high pitch and its distinct sound. *Khloi lib* is tuned in F (four steps higher than the khloi phiang aw).

Khloi ou.

Khloi ou is the largest of its family, as the alto version of the khloi phiang aw. Unlike the khloi phiang aw and the khloi lib, the khloi u has only 6 tone holes. It is tuned in Eb, F, or G (lower than the khloi phiang aw). It is also used in many Thai bands and ensembles.

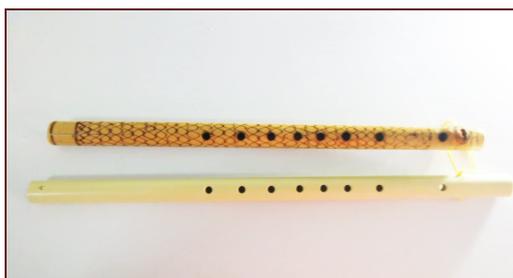


Figure 5 Khloi, recorder of Thailand

## 2.2 Myanmar

The *palwei* is a Burmese recorder, wind instrument which consists of a hollow tube played by blowing through a hole at one end. The sound production hole is covered by a piece of film, plastic or other thin material that use as air divider for better sound production. There are two kinds of Myanmar flutes, the *khin palwei* and the *kyaw palwei*. The *khin palwei* is the more commonly played and it has a vintage and a reed at the blowing end. The *kyaw palwei* has no reed.

Earlier flutes were made of cane, bamboo or brass, while present day *palwei* are made of wood or plastic. The vintage holes are made according to the diameter of the bamboo. There are 10 perforated holes: seven finger holes, a thumbhole, the membrane hole, and the *pinleku* or vent hole. However, the modern *palwei* no longer has a membrane hole because it tends to produce a shrill sound. *palwei* come in two sizes – big and small, and it can cover the chromatic scale.



Figure 6 Burmese Palwei



Figure 7 Indonesian suling

Picture from the Music of Southeast Asia

## 2.3 Indonesia

The Indonesian recorder is called *suling*. *Suling* is the Sundanese term for *seruling* the Indonesian's word, which means flute. Made from bamboo, Indonesian *sulings* are end blown flute and vary in size. The fingering position changes the wavelength of sound resonance inside the *suling's* body. Depending on the distance of nearest hole to the *suling's* head, different notes can be produced. The airflow speed also can modify the tone's frequency.

A note with twice frequency can be produced by blowing the air into *suling's* head's hole with twice speeds. Generally, the shorter the *suling* produces higher pitch than the longer one. This simple *suling* produces tunes or melodies that have traditionally been interpreted as the sound of joyful learning. There are many

regions in Indonesia that use suling as a traditional instrument and have different local names for it. In Java, Sunda, and Bali, this instrument is commonly called suling, in Minang it is called saluang, in Toraja, it is called Lembang flute, in Halmahera, it is called bangsil, and in West Nusa Tenggara it is called silu. Suling is an Indonesian bamboo ring flute which is used in various traditional ensemble performances, including gamelan, gambus, and dangdut. The suling being tunes in two Indonesian musical systems, slendro and pelog.

This suling is made of a long, thin-walled bamboo tube called tamiang and a thin rattan band encircles the mouthpiece. ([https://en.wikipedia.org/wiki/Music\\_of\\_Indonesia](https://en.wikipedia.org/wiki/Music_of_Indonesia))

#### 2.4 Cambodia

The recorder of Cambodia is named *khloy*, the *khloy* is an end-blown vertical flute, made of several kinds of bamboo (*dak mai*, *ping pung*, or *pork*), wood, plastic, or metal with a length of 15 inches and a diameter of approximately one inch. It is commonly known as a duct of fipple flute. It is used in the *mohori* and the *kar* ensembles, or as a solo instrument. In Cambodia's countryside, a boy or a man under a straw hut or on the back of his water buffalo playing a *khloy* while watching his cattle, keeping them from eating the rice paddies.

The tone of the *khloy* is produced by blowing into the duct at the tip of the instrument. It has a range of approximately two octaves from D to C. There are two sizes of *khloy* -- the small called *khloy touch* and the large called *khloy thom* which is larger size than *khloy touch* and the sound is deeper and is not commonly found in the current practice.

The *khloy* has six or seven fingerholes and a thumbhole (some do not have this hole). Some musicians prefer a membrane and therefore another hole toward the upper part of the instrument is drilled. The membrane is made of either rice paper or bamboo membrane inside the tube, which provides a bright and crisp sound. (<http://archive.pov.org/thefluteplayer/conduct/4/>)



Figure 8 Cambodian khloy

## Discussions

The blown instrument divided into two kinds; one is the instrument that has reed and other has no reed. The no reed instrument is what we called flute and the flute divided into two sub-kinds, the end-blown flute, and the side-blown flute. The side blown one are such as western flute, Chinese flute, and the end-blown flute that is divided into two kinds; one is without duct such as Arabic *nay*, Chinese *xiao* and Japanese *shakuhachi*; another having duct and is what we called recorder. The recorder has duct for air control to produce a specific sound quality.

For describing these two kinds of instrument people usually mixed up between these two terms, recorder, and flute. In western world the term recorder is normally known to the people, but for the local people in Southeast Asia the term recorder is not well known rather than local term of native speaker such as *khloi* for Thai, *suling* for Indonesian, *palwei* for Burmese and *khloy* for Cambodian. Even the organ structure of these instruments are the same, this is because of cultural different, so that scholar who want study any instrument, music in a specific part of the world should aware of this cultural different.

## Suggestions

Suggestion for this research: If researcher put up some of musical notation of a favorite tune of each country it should make more interesting and more understanding for the readers.

Suggestion for further research: To make a complete study, other researcher could study the recorder in any other countries or other continents such as recorder in Africa, America and in the Caribbean area.

## References

- Diagram Group. 1967. **Musical Instruments of the world**. New York
- Roongruang, Panya. 2004. **History of Thai Music**. Thaiwatanapahich, Bangkok.
- \_\_\_\_\_. 2005. **Dontrithai Prakawb Siang** (Thai Music in Sound), Aasomsangkit. Nonthaburi.
- Terry E. Miller & Andrew Shahriari. 2006. **World Music A Global Journal**. Routledge Taylor and Francis Group, New York.

## KHLUN GRATHOP FANG ARRANGEMENT FOR THE MARCHING BAND

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### Abstract

Khulun Grathop Fang, It's the original Thai song. Authored by His Majesty King Prajadhipok, the reign of King Rama VII, has been linked to the brass band for since the past. by presenting a Western harmonious sound with a Tertian system arrangement and the use of Western music composition techniques to design minor melodies and accompaniment in accordance with the style of the marching band to be consistent with the complete marching which is an important inspiration leading to the concept and process of arranging music to score a song for a marching band that has academic standards and values

**Keywords:** Khulun Grathop Fang, arrangement, music composition, brass band, marching band

### Introduction

Harmony of Khulun Grathop Fang, It is a creative work. The author designed for a marching band to be used in teaching the course of the International Musical Practice Course. The goal is to design score used in teaching and learning. With the method of creating harmonics and secondary melodies according to Western music theory that reflects the concept of creating a connection with brass band music The key principle used in music note design is to take into account the potential of musicians, therefore, consider the complexity of the music notes as important. In line with Jitrangsan Wichit (2021) said that the important approach in song design is to Write melody notes that spread functions for simple instruments. Emphasis on the joint function of each group of instruments. Do not write to one group of machines to act too hard. This approach results in the right number of notes in each instrument group, with just the right balance in each instrument cluster. It is the principle of broadcasting or the function of a powerful instrument. Which is the style of playing of the instruments for this type of band.

The marching band is a band that has been linked to Thai society for a long time as evidenced in the reign of King Chulalongkorn. By entering via warships from western nations which has presented a musical performance from the soldiers in the process of summoning the royal message to the king to build friendship from those events brought to a phenomenon that was important to Thai society at that time with the formation of the brass band Acting to play music for marching, leading the procession to the King and has continued to develop in composing songs for salutation to the King and the Royal Family It is a royal tradition that has been inherited for a long time. (Amatayakul, 2016) It is a band that is linked to the education system in Thailand. Both in the school group from the elementary and high school levels. Including at the tertiary level, which students and students are groups that are connected with the marching band business, which is an important factor in the development of the marching band It also connects in education both in the history of the band and the important songs that create a phenomenon in society.

Khulun Grathop Fang, Written by His Majesty King Rama VII with the style of Thai Classical Music with moderate of rhythm. It is a song included in the ancient cymbal song. It consists of Phleng Fongnam, Phleng Fang Nam, and Phleng Khulun Grathop Fang. It is a popular song that is sung and played in Khon dramas. And also included in the song The royal writings of His Majesty King Rama VI. A phenomenon that is important to society is the bringing of this song to play in the brass band, which is a development from Troops from the Army Corps in various divisions that spread knowledge to people inside and outside the city was born as a folk trumpet Which has created entertainment, resulting in popularity among the people (Natjanawakul, 2016)

With a fun style of melody when found to be played in the brass band It is a melody that is familiar to the general public. The use of songs for various parades to create a phenomenon that is important to society has resulted in popular music for brass bands, leading to a harmonious arrangement for a marching band. It was found continuously performed by school and university groups at various festivities, whose arrangements differed according to the conductor. To create new knowledge in arranging and harmonizing old Thai songs to be standardized. From the aforementioned importance and origins, the author has designed a creative work of

musical art called " Khlun Grathop Fang ". Arrangement for the marching band for the academic benefit of Western music in Thailand, details are as follows.

### **Objectives**

Arranges for the marching band.

### **Literature Review**

The author has studied and researched information. From textbooks and related research papers. The issues are divided into 2 topics, which are linked in the creative work. Which focuses on the different ways of organizing the harmonies used in the arrangement of music. The details are as follows.

#### **Related research and creative work**

Kaewdee (2018) Studied the arrangement of the royal songs of His Majesty the King for a symphony orchestra, a case study of Lt. Col. Prateep Suphanroj. It was concluded that have a purpose, To study the composition of the songs of His Majesty King Prajadhipok's symphony orchestra by Lt. Col. Prateep Suphanrot, and to study the technique of composing and composing the royal songs of His Majesty King Prajadhipok For the symphony orchestra of Colonel Prateep Suphanroj, the results showed that Compiled 3 songs. Including the song Ratri Pradap Dao, Khamen La O Ong, and Khlun Grathop Fang, with the original lyric. The use of the pentatonic scale technique was found. Using Pedal Tone, Parallel Perfect Intervals. In terms of melody and rhythm, techniques were found to be used, Ostinato, Syncopation to add color to the song. Characteristics of verse 1 has 32 patterns, verse 2 has 28 patterns, with melodic repetition, rhythm reduction These points are fully connected to the design of the song.

Supachitra (2016) Creation of thesis compositions: Concerto for the saxophone and the symphony orchestra. Khlun Grathop Fang, Its purpose is to create compositions for saxophones and symphony orchestras. With the Rondo Form, Three-part Form and the appearance of the Sonata Rondo in the form of a concerto with classical and jazz music styles It consists of 3 sections, approximately 35 minutes long, of medium, slow, very fast rates, according to classical concerto standards. Inspired by the songs of the classical and jazz eras. Such as Concerto en Mi bemol pour Saxophone Alto et Orchestre a Cordes by Alexandre Glazounov, Concerto pour Saxophone Alto et Orchestre a Cordes by Pierre Max Dubois, Concertino da Camera pour Saxophone

alto et onze instrument by Jacques Ibert, Concerto pour Saxophone Alto et Orchestre by Henri Tomasi, Rhapsody for Tenor Saxophone by Caesar Giovanni etc. The method of conducting research is to determine Form, Main melody. Create different compositions in the composition, the alignment of each musical instrument. Found the use of the Dominant Seventh Chord to design the Transition melody, in each verse with a Diatonic scale and the Diminish scale and techniques for Retrograde, Rhythmic Repetition, Tierce de Picardie. Which was published in the form of concerts, held 2 times, namely the first on 20 November 2014 at room 111, Maha Chulalongkorn Building. Faculty of Arts, Chulalongkorn University with Dr. Rujiphas Phuthanannaruphat as conductor of the 2nd time on November 24, 2014 by Showa University Wind Symphony at Showa University of Music, Japan with Professor Hitoshi Sekiguchi and Associate Professor Shintaro Fukumoto as conductor.

Jitrangsan (1993) The creative work of Song of Honor No. 6, Khlun Grathop Fang with AABBA music structure, Time signature as C cut or 2/2 speed of half note to 100, 37 bars for wind orchestra Published by the College of Music. Mahidol University By creating a triad of harmonics, and others supporting the melody, the distinctive feature is the writing of the bass line to move the melody. Which is the highlight of this compilation.

### **Related theories**

Erickson (1983) From Arranging for the Concert Band, is an important method in arranging for a symphonic orchestra, or marching band The goal is to present a method for arranging music. with various techniques, with the content of which includes musical instrument test presentation of each musical group Creating melodies and aligning melodies Mixing of low-pitched woodwind and brass, bass instrument, percussion instruments, that can't make a melody sheet music for percussion big score writing Creating different musical colors between groups of instruments, multi-sound music Removing notes from the piano Removing notes from the orchestra Starting a scoreboard for a band How to sort notes from score to group of instruments.

Ligon (2001) From Jazz Theory Resources is a guide to creating harmonious harmony with jazz music. The goal is to present techniques that focus on creating harmonious sounds in ways that are in sync with the modern era. Contains content related to modes concept, Interval of 4<sup>th</sup>, Other scale and musical colors Expansion of the compound chord structure Application of the pentatonic scale Creating a color

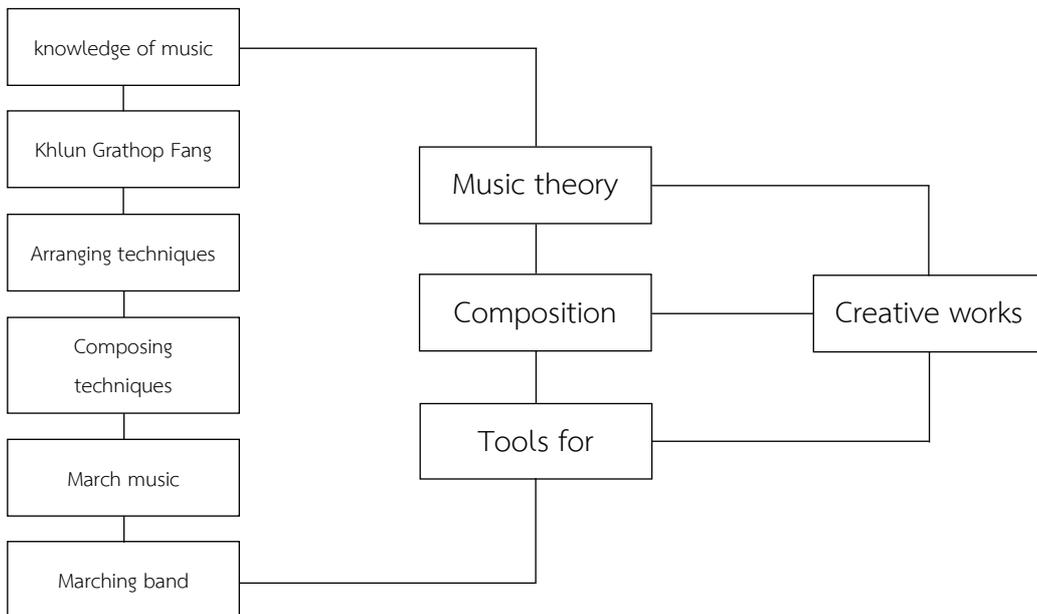
that separates from the melody Song overview analysis expanding the vocabulary of the chorus.

Pease and Pullig (2001) From the book *Modern Jazz Voicing*, aims to present a method for creating harmonies based on jazz patterns. The content consists of 2 parts: Part 1 Fundamentals about information about the instrument Basic techniques for creating color Fundamentals of various chord arrangements, chord sets and parts 2 Modern jazz chord arrangements include: Interval of 4<sup>th</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, Synchronize 6 lines.

From the text, the author has applied it in the creation of works such as the interval of 3<sup>rd</sup> and techniques for creating musical colors. Both from creating a harmonious sound, including designing melodies for various instruments.

### Conceptual Framework of Creative works

Creative work of Khlun Grathop Fang, the author has designed the composition. Consistent with the principles, concepts and theories as shown in the picture below.



Conceptual framework for creating works

### Creative Methodology

Khlun Grathop Fang, It is a creative work of arranging for the marching band. Focus on playing in the manner of walking. To create fun and enjoyment in various businesses with details as follows.

### **Step 1 Creative Inspiration**

The author has experienced the brass band culture in the central region. Popular for playing the brass band in events, weddings, parades, processions, etc. That focus on creating fun for the participants to accompany the walk. Therefore, the impression and interest in the songs led to the composition of the songs for the marching band.

### **Step 2 Tools for composition**

The tools used in the creation of works include computers, Sibelius programs. by creating a music score from writing notes with techniques for arranging sounds from documents and textbooks both domestically and internationally.

### **Step 3 Band Formatting Ideas**

The author has formulated the concept of band formatting. With the goal of bringing the band features as a framework for composing songs The details are as follows.

1. Band selection, The author's idea of creating a work by considering the conformity of the band's appearance that is linked to the nature of the song is an important issue. Found that the marching band It is a band that has a style that is consistent with the author's inspiration.

2. Marching band, With a music score design for a medium-sized band with 20-25 instruments that are linked to a band that focuses on playing for the marching accompaniment.

3. Considering the potential of musicians, It is an important factor that contributes to the completeness of the song. This is because the ability of the musicians to play should be consistent with the difficulty of the song. Which the author has set the principles as follows: melody design with proportions grouped in uncomplicated rhythms in accordance with the main melody, stroke, proportion with a rhythmic design that is related to Rhythm for the parade in Thai music, and the sound design that corresponds to the flat. with a scale of B<sup>b</sup> Major

Band formatting, It is the planning of the design of the sheet music. Which the author has considered as an important factor in arranging music In particular, the musician's potential is considered in order to plan the design of the sheet music in relation to the musician's ability. With other factors as important variables as has been presented above.

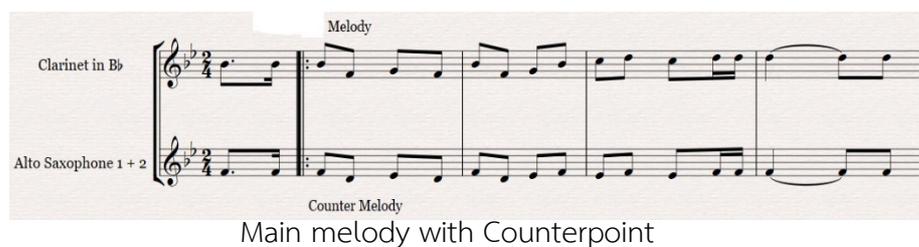
### Step 4 Composing

Arranging is the key to creating works. The author has identified issues at work that are linked to the musical composition. With the following details.

1. Form, The authors designed the structure of the song in AABB format, with a reverse of the beginning and the end of section A, like the chart.

A / A / Fine B / B D.S. al Fine

2. The melody of Khlun Grathop Fang, The author has designed the melody with the main melody with Counterpoint. With a design that relates to the grouping of notes. However, the main melody is the melody from the original. With a secondary melody that the author has designed with techniques imitating the main melody, expanding the melody, and reducing the melody to create a balanced melody with the characteristics as shown in the picture.



Main melody with Counterpoint

3. Accompaniment, In the design of Accompaniment The author has important concepts in the design of 3 styles: Melodic rhythm, bass, and percussion. This is an important method to complete the main melody backing music, such as the design of section A, 1<sup>st</sup> - 5<sup>th</sup> bars. The author designed the main melody as the I trumpet, with the trumpet II and III instruments playing the rhythm. In the form of Upbeat is proportional to create a concise style to move the melody. For Trombone, Euphonium, and Tuba, the author wrote the foundational instrument notes. To complete the harmonious tone by relying on the base note and the interval of 5<sup>th</sup>, or the member notes in the chords alternate as appropriate. In addition, it also uses the rhythm of the percussion instruments. To support the main melody and the accompanying music to be completely according to the musical composition. With a style of playing that is consistent with the march rhythm to facilitate a fun march In the example mentioned above, it looks like the picture.

Accompaniment

Lowell and Pullig (2003) Presents an important principle in the formation of the members of the chords. This is an important way to create it by presenting notes relative to the chord, such as the 1<sup>st</sup> , 5<sup>th</sup> , 3<sup>rd</sup> , 7<sup>th</sup> notes. And create a smooth melody The author has used it in the design of the background music at some points. with the characteristics as shown in the picture.

Creating an accompaniment based on Chord tone

The accompaniment in the A section, 9<sup>th</sup> - 14<sup>th</sup> bars, has been developed with a focus on creating minor melodies. That is related to the main melody during the resting period, consistent with Lowell and Pullig (2003) described this technique as Melodic Subdivisions as a guideline for creating melodies. Small During the break of the main melody, the sound is broadcast to different groups of instruments to create a musical color with a play that alternates the color of the instrument. The authors have adopted this approach as the main concept in the design of the accompaniment. With the characteristics as an example.

Melodic Subdivision

The accompaniment in part B, rooms 17<sup>th</sup> – 31<sup>st</sup> bars. The author has designed the music in 4 groups that serve to complete the main melody, with the first group being flute and clarinet instruments. Create a melody that intermittently harmonizes the main melody with the main melody. The second group is the trumpet group. Create a proportional melody with the notes belonging to the chords, Group 3 is a low-key brass instrument, including the euphonium and tuba, forming a foundation from chords to create a base sound from chords. Group 4 is a percussion instrument. It is an instrument that produces the main rhythm in support of the melody. By creating a continuous fun rhythm that corresponds to the playing style. The group's musical instruments are important to indicate the distinctive identity of the song in accordance with.

Shellahamer, Swearingen and Woods (1986) From the book *The Marching Band Program* describes the form of a marching band. In a row There are many styles, including military style, band show style. Percussion show style, Corps style, Combination style The style presents various scenarios, each of which is related to a group of percussion instruments that create a unique musical color. For an example of the grouping of instruments used in the background music looks like the picture.



Accompaniment in part B

4. Harmony of Khlun Grathop Fang, The author has a guideline for laying out the harmonics from 3 themes, namely chord progression, chord duties and special effects, which are thought from the lead sheet, with the characteristics of the table.

Section	Bars	Chords	Function
Section A	1 - 14	Bb, Bb, Bb F7, Bb, Bb, Bb, Bb F7, Gm, Gm F7, Bb, F7, F7, F7	I, I, I, V7, I, I, I, I, V7, VI-, VI- V7, I, V7, V7, V7
Section B	15 - 31	Gm, Cm, Gm, Eb, Gm, Cm, Gm, Gm F7, Bb, F7, F7, F7, F7, F7, F7	VI-, II-, VI-, VI, VI-, II-, VI-, VI- V7, I, V7, V7, V7, V7, V7, V7



On these principles of chord function analysis, the authors focus on theories related to modern music. That link to the analysis of jazz music. From the online book *Open Music Theory*, Wharton and Shaffer (2022). The principles of these chord function analysis are consistent with jazz theory. From the book *Jazz Harmony* (Srikanon. 1994), which is an important guideline that the author used in the design of chord functions.

5. Sound orientation for the instrument. It is a method of designing sound in relation to that instrument, which is the process of designing the roles and functions of each instrument. The details are as follows.

5.1 The alignment of the sound of Interval of 3<sup>rd</sup> is the creation of a harmonious sound in the manner of tertian system, which is the main idea of arranging the harmony of the songs from the example. The authors stacked the 3 major octave with the notes F, A, and the Eb top. Is a perfect 5<sup>th</sup>. Designed as the F7 or V7 chord, which acts as a dominant in the melody. As shown in the picture.



Interval of 3<sup>rd</sup>

5.2 Interval of 4<sup>th</sup> is the placement of the 4 octave harmonies stacked in order to create a harmonious sound that is different from the first form. With the characteristics as shown in the picture.



Interval of 4<sup>th</sup>

5.3 Dissonant interval, It is designed in the Dominant chord as shown in the picture.

Dissonant interval

5.4 Spread Voicing, This creates a harmonious sound with a wide open range. From the example, it is a group of low-pitched notes with notes A, F, as shown in the picture.

Spread Voicing

5.5 Dominant Motion Techniques, It is a V7 – I movement with characteristics as shown in the picture.

Dominant Motion Techniques

### Step 5 Presentation

The author presents the song by publishing. To be used for teaching the course Practice as a group of international bands in the academic year 2014 onwards and have continuously developed and improved by the present.

### Conclusion

Khlun Grathop Fang, It is a song that is based on Thai music culture. The authors have used music theory, concepts and ideas to design the harmonies, and make secondary and other details, resulting in the composition of the music as a

cultural blend. With composition principles consistent with popular music Create a score of songs that are completely connected to the rhythm of Thai music.

### Discussions

Creative work Khlun Grathop Fang, Arrangement for the marching band The objective is to arrange the music, the result is the score for the marching band. Focusing on the content theory of modern music composition By creating harmonies and parts of the song, as well as subordinate melodies that support the main melody to be complete, with the point of the scale used. The author designed the Bb Major scale. In accordance with the creative work Khlun Grathop Fang by Wichit Jitrangsan who arranged the music in 1993 as a design for a large wind orchestra There is a musical instrument that completes the harmonious composition. And is a song that chooses a scale that is suitable for this type of band as well as the sound range of the instruments in the band.

### Suggestions

1. Researchers or people who are interested in composing music can take the research results for analysis. To know other ideas on other issues.
2. Should add color from the instrument in other ways.
3. There should be a transcript of the conceptual lessons for creating this research. To create new knowledge in other areas in depth quality research.

### References

- Amatayakul, P. (2016). **Siam Horn**. Bangkok : Mahidol University.
- Erickson, F. (1983). **Arranging for the Concert band**. Miami Florida : Belwin-Mills.
- Jitrangsan, W. (1993) **Khlun Grathop Fang**. Nakhon Pathom : Mahidol University.
- \_\_\_\_\_. (2021, August 29). Lecturer of Western Music Department Bansomdetchaopraya Rajabhat University. interview.
- Kaewdee, P. (2018), January - June). “ **His Majesty King Prajadhipok's work for the Symphony Orchestra Case study of Colonel Prateep Suphanroj.**” Journal of Fine and Applied Arts. Khon Kaen University. 10(1) : 318 - 347.
- Ligon, B. (2001). **Jazz Theory Resources**. Micwaukee : Hal Leonard.
- Lowell, D. and Pullig, K. (2003). **Arranging for Large Jazz Ensemble**. Boston : Berklee.
- Natjanawakul, N. (2016). **Siam Horn**. Bangkok : Mahidol University.

- Pease, T. and Pullig, K. (2001). **Modern Jazz Voicings**. Boston : Berklee.
- Shellahamer, B. Swearingen, J. and Woods, J. (1986). **The Marching Band Program**.  
Oskaloosa Iowa : C.L. Barnhouse company.
- Supachitra, P. (2016, July - December). “**Thesis composition: Concerto for the saxophone and the symphony orchestra.**” Music Journal, Rangsit University.  
11(2) : 79 - 93.
- Wharton, R. and Shaffer, K. (2022). “**Harmonic function.**” [online]. Available:  
<http://openmusictheory.com/harmonicFunctions.html> Retrieved March 1,  
2022.

LEADERSHIP AND MOTIVATION IN WORKING OF PERSONNEL IN  
SAMPHAOLOM SUBDISTRICT ADMINISTRATIVE ORGANIZATION,  
PHRANAKHONSIAYUTTHAYA

ภาวะผู้นำกับแรงจูงใจในการปฏิบัติงานองค์การบริหารส่วนตำบลลำเภอลม  
พระนครศรีอยุธยา

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ABSTRACT

The purpose of this research was to study the leadership and motivation in working of personnel in SamphaoLom Subdistrict Administrative Organization PhraNakhonSi Ayutthaya. The sample group used in this research was 260 personnel in Samphao LomSubdistrict Administrative Organization. The data collection instrumentls were questionnaires. The statistics used for data analysis were percentage, mean and Standard Deviation.

**The results of the research revealed that:** The leadership and motivation in working of personnel in SamphaoLom Subdistrict, Administrative Organization Phra NakhonSiAyutthaya. Overall, were at high level, when considering each aspect, found that: There was at high level in every aspect, by the highest mean, namely the motivation for the performance of personnel in the SamphaoLom Subdistrict Administrative Organization. PhraNakhonSiAyutthaya, In 7 areas as follows: 1) Leadership and sense of responsibility 2) Leadership and sense of accomplishment 3) Leadership and sense of security 4) Leadership and satisfaction at work 5) Leadership and relationships 6) Community-Leadership and Education Support and 7) Leadership with Building and Service Development.

**Keywords:** Leadership, Motivation, Working of Personnel.

## Background and importance of the problem

Thai education system, there was a big change with the National Education Act 1999 and amended it again in 2002 and 2010. Everyone has to adapt to this change. It was recognized that the National Education Act. It became a law that has always laid out guidelines for the management of education. It considered an education reform law that was occurring in Thailand now or in many countries before. It confirmed that the general society, aware of the importance and benefits of education, as **Thira Runcharoen. (2014)**. Mentioned management to reform learning, including the aim of seeing education as having potential. There was enough power to do the job. In the process of developing the quality of members of society through various forms and methods, as well as creating a body of knowledge wisdom for the whole country's society. The main goal of the school has developing students to have more qualities and characteristics that are desirable in accordance with the objectives of the curriculum. The people who directly affect the quality of students were personnel. The development of quality and efficiency in the performance of educational institution personnel requires more care and attention, motivate them to be ready to perform the duties well and with quality. Otherwise it may affect the quality and efficiency. How effective was the personnel's performance? A very important factor was the morale of the personnel. So motivation was paramount. This was because of the positive attitude towards work. It was a supporting factor that affects the effectiveness of personnel. Therefore, it could be said that motivation of personnel to put as much effort into their work as possible, probably the best way (Education Reform Office, 2017).

How Leadership Executives Unite the Minds of Co-Workers for Collaboration  
There were many ways to work together to accomplish the mission of the organization. But one of the most popular and best methods were "incentives", some people working in an organization work diligently. Those people, Social psychologists had researched both work environments. and the behavior of the person expressing. It could be concluded that as a result of motivation (Motive) Motivation occurred in many variables, both internal and external factors. Internal variables or individual variables, called Individual Variables, were motivations that might be drive, emotion, desired, unrequited. (Frustration), Dissonance, and other things that drive you to want to work or not want to work effectively and successfully. In addition, external factors or external variables, according to the

situation, such as working environment such as rewards, job titles, salary advances influence from colleagues, convenience at work, etc., all of these influences the motivation to work. Because the influence of motivation was inducing or mobilizing people to focus on the works. This would make the operation more efficient. According to the research of Busaba Rattanamongkol (2008: 63) concluded that Human behavior to do something or not do something caused by a number of reasons. Motivation was a key component of a person's behavior. Because, it was an element that motivates, drives, induces a person to act or not act in any way One's natural approach to life running a private business or performing work duties Motivation was always needed to be the cause of the behavior. Studying a person's motivation was beneficial to help created knowledge. Understanding the factors that influence a person's motivational characteristics, understand the starting point of motivation, understand the effect of motivation on individual behavior and helps the ability to organize the work environment and conditions in a way that encourages the individual to be motivated or good incentives match his satisfaction. That incentive will be the impulse that will drive his attention, paying more attention to the work done as **Kwanjira Thongnam** (2017: 51) has said, in other words, the right motivation was the one that attracts the feelings and minds of human beings to be more united with the organization.

Therefore, in the performance of work to achieve success. It is necessary to motivate personnel to perform tasks. This is a factor that is no less important in management than other elements. At the school level, there will be personnel responsible for: school administrator with government teachers who perform duties related to teaching and learning management. In order to achieve the school's various objectives, cooperation between the school administrators, required. and government teachers to make effective administration to achieve the desired objectives through a good management process, having a mechanism of systematic coherence of development and arising from the cooperation of human resources in all the parties involved inside and outside the school said that; the quality of the school must come from the skill of all school personnel. It is important to realize this vital task that teachers, administrators, parents and communities must create and develop the qualities, so they are ready for used in development, student quality or the quality of the school (**Jiamchit Srifa**, 2019: 79) from the importance and condition of such problems and study from reference documents, including

related research. The researcher gave importance to this study of leadership and motivation in working of personnel in SamphaoLom Subdistrict Administrative Organization, PhranakhonSiAyutthaya, to be a good guideline for administrators in leadership roles. The results of the research were used in planning, improving the management of the personnel management, and related persons which will directly affect the effective operation and efficiency contributes to the development, and for further progress in the performance of personnel in Samphao Lom Subdistrict Administrative Organization, Phra NakhonSiAyutthaya.

### **Research objectives**

To study leadership and motivation in working of personnel in SamphaoLom Subdistrict Administrative Organization. PhraNakhonSiAyutthaya.

### **Scope of research**

#### **Content scope**

This research aimed to study leadership and motivation for the performance of personnel in Samphao Lom Subdistrict Administrative Organization. PhraNakhonSiAyutthaya Province There are 7 areas of the Herzberg's concept (Herzberg, 1959): 1) feeling or sense of responsibility; 2) feeling of accomplishment, 3) feeling of security, 4) feeling of satisfaction at work relationships in the agency 5) supporting community and education 6) buildings of the development and services.

### **Population/Sample**

The sample group in this research including 260 personnel in Samphao Lom Subdistrict Administrative Organization, Phra NakhonSiAyutthaya.

### **Research variables**

The basic variables were personnel status, classified by age, educational level. and working experience.

The variables studied were leadership and performance motivation of personnel in SamphaoLom Subdistrict Administrative Organization: 1) Leadership and sense of responsibility 2) Leadership and sense of accomplishment 3) Leadership and sense of security 4) Leadership and satisfaction at work 5) Leadership and sense of

security 6) Community leadership and education support and 7) Leadership of building and service development.

### **Data Collection Tools**

The instrument used in this research was a questionnaire related to leadership and motivating work performance of personnel in SamphaoLom Subdistrict Administrative Organization. PhraNakhonSiAyutthaya divided into 2 parts:

**Part 1:** A questionnaire about the status of the respondents. consisting of gender, age, status, educational level and working experience in the form of a checklist

**Part 2:** A questionnaire on leadership and motivation for the performance of personnel in Samphao Lom Subdistrict Administrative Organization. 1) Leadership and sense of responsibility 2) Leadership and sense of accomplishment 3) Leadership and sense of security 4) Leadership and sense of satisfaction at work 5) Leadership and sense of security 6) Community leadership and education support and 7) Leadership and building and service development.

### **Summary of research results**

Leadership and Motivation in working of Personnel in Samphao Lom Subdistrict Administrative Organization, PhraNakhonSiAyutthaya. It was found that personnel had a high level of overall motivation for the work. And when considering each aspect, found that it was at high level in every aspect, ranked by the highest level as Leadership affects the sense of responsibility, Community leadership and education support, Feeling of security relationships in the agency, Building development and service. Leadership and sense of accomplishment, Leadership and sense of satisfaction at work was at the least level.

### **Discuss the results**

Research Results of Leadership and Motivation in working of Personnel in SamphaoLom Subdistrict Administrative Organization, PhraNakhonSiAyutthaya, overall and each aspect, there were at high level of reinforcement of motivation in all aspects of work, in descending order as follows: Leadership affects the sense of responsibility. Community leadership and education support, Feeling of security Relationships in the agency, Building development and service, Leadership and sense

of accomplishment and feelings of satisfaction at work. This may be due to Executives of SamphaoLom Subdistrict Administrative Organization, PhraNakhonSiAyutthaya. Giving importance to personnel management in every step, since the recruitment process supportive care, providing opportunities for self-improvement, supporting personnel to progress considered the merit. This would be creates confidence, loyalty, and faith in the organization, resulting in commitment to the organization and driving the personnel to perform the organization effectively (Busaba Rattanamongkol, 2008) and in line with the concept of Kwanjira ThongNum, (2017). Said that, school administration was the heart of success lies in the ability of administrators to motivate teachers to do the best. There were several ways in which the administrators would be unite the minds of the colleagues in order to achieve the mission of the organization. But one way to get a lot of attention and gain recognition was through incentives. There were many methods of motivation, so it was important to choose the one that best suited each individual and each opportunity, because motivational leadership must be created to meet the needs of the motivation. The leader who known how to motivate people and apply it to his subordinates would make him work willingly. and worked successfully and achieve the objectives as targeted (Kwanjira Thongnum, 2017: 15) and in accordance with the research of Acting Lieutenant Chamroen Tonsuwan (2013) found that morale in the performance of government teachers at the College of Agriculture and the overall in SaKaew technology was at high level and in accordance with the research results of Warunee Supyen (2019). It was found that the level of motivation in the performance of personnel in the performance of government officials of the Office of the Teachers Commission was at high level. Including a research by Thanomrat Chalonglert (2017) where the results showed that the level of motivation in teacher performance under the RoiEt Educational Service Area Office 1, the overall was at high level, and in line with the research of Panida Jirasatthaworn (2019), the results showed that the motivation in all aspects of the teachers' performance at PrapatsornWittaya School, Muang District, Chonburi Province was at high level. As for the research of Busaba Ratanamongkol (2008), the results showed that Motivation for the performance of government teachers at KingAmphoe NikhomPhatthana School under the Rayong Educational Service Area Office 1, overall and each aspect were at high level. And in accordance with Benjawan Chochu. (2017). On the role of leadership of educational institution administrators in promoting academic administration.

**Feedback/** Suggestions for applying the research results:

1. Sense of responsibility have the highest level, average more than other motivations. Leaders should select and assign duties that match the personnel's abilities, should listen and continuously motivate, and giving decision-making powers at the same time. Because, most of teachers feel that they were trusted and pride in working.

2. The feeling of success, Leaders should see the importance of the residents. Subordinates should be commended, praised, encouraged. When the job was done. Should encourage and support in doing the work, and consider merit and meritorious according to ability and fairly. Delegated important tasks to do occasionally, encourage subordinates to receive training for their development or contribute develop work.

3. The sense of security, Leaders should use emotion in making decisions, be fair with care management. Promote and maintain benefits and provide appropriate and adequate welfare to make subordinates feel confident in their existing positions.

4. The feeling of satisfaction at work. They were on average less than other motivations. Therefore, Leaders should bring leadership to enhance motivation in this area to increase. In particular, the evaluation of personnel's working with clear performance evaluation criteria to ensure fairness. And the administrators must give opportunity for teachers to express their opinions and accept.

5. Development of buildings and services, leaders should manage leadership to promote building development with proper placement, create a beautiful and appropriate working atmosphere, procurement of suitable materials, equipment and services with more adequate.

**Suggestions for further research**

1. Should study about the motivation for the teacher's performance that affects the learning achievement of the learners.

2. Should be a leadership study that affects the development of motivation for the performance of the SamphaoLom Subdistrict Administrative Organization.

3. Should increase the study of the relationship between the leadership behavior of the administrators of SamphaoLom Subdistrict Administrative Organization and the motivation for the performance of personnel in the Child Development Centers under the Subdistrict Administrative Organization should be added.

## References

- Adair John. (2012). **Leadership and Motivation fifty rule**. Library of Congress.
- Kessuda Tanchun. (2002). **Variables related to job motivation of registered nurses**. Samitivej Sukhumvit Hospital, Bangkok. Master's thesis Srinakharinwirot University Prasarnmit.
- Krongchit Phromrak. (2015). **Motivation for the work of the library librarian. Award-winning and non-awarded secondary schools**. Master's Thesis Srinakharinwirot University Prasarnmit.
- Kwanjira Thongnum. (2017). **Factors Affecting Motivation for Performance of Government Teachers, College of Dramatic Arts, Fine Arts Department**. Master's Thesis. Srinakharinwirot University Prasarnmit.
- Jiraporn Thaiking. (2008). **Variables related to job motivation of civil servants. Office of the Teachers Commission Ministry of Education**. Master's thesis Srinakharinwirot University Prasarnmit.
- Jiamjit Srifa. (2019). **Factors Affecting Motivation for Assistant's School Administration. Elementary school administrators entering a new position under Bangkok** Thesis, Master's Degree Srinakharinwirot University Prasarnmit.
- Chamroen Tonsuwan (2013). **Morale in the performance of government teachers at Sa Kaeo College of Agriculture and Technology**. Ubon Ratchathani Rajabhat University.
- Thanomrat Chalonglert (2017) **Motivation for Teacher's Performance under the Roi Et Educational Service Area Office District 1**. Ubon Ratchathani Rajabhat University.
- Teera Runcharoen. (2014). **Management for Learning Reform**. Bangkok. Khao Fong Publishing Co., Ltd.
- Benjawan Chochu. (2017). **The Role of Educational Institution Administrators in Promoting Academic Administration**. Wichuthit School, Din Daeng District, Bangkok
- Busaba Rattanamongkol (2008). **Self-development On Motivation Techniques for Operations for Academic Administrators in Educational Institutions and Government Teachers at King Amphoe Nikhom Phatthana School Under the Rayong Educational Service Area Office Area 1** . Doctorate Degree, University Srinakharinwirot Prasarnmit.

Panida Chirasatthaworn (2019). **Motivation for the performance of teachers at Prapatsorn Wittaya School, Amphoe, Chonburi Province.** Master's degree. Srinakharinwirot University Prasarnmit.

Warunee Supyen (2019). **Motivation for the Performance of Officials.Board of Teachers.** Master's thesis Srinakharinwirot University, Prasarnmit.

## MUSIC COMPOSITION: ME AND THE OTHER SOULS

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### Abstract

This research is a creative research, aimed to create music composition for Clarinet ensemble that inspired by Multiple personality disorder. Symptoms of disease have two or more separate personalities. The other personalities have own characteristics, such as background, character, demeanor, as well as having a unique name. The personality states alternately show in a person's behavior.

To compose this composition, the researcher interpreted the symptoms of disease by using Various of music styles, Contemporary composition techniques through Researcher's creation for expression symptoms of Multiple personality disorder. The composition is divided into 8 movements: 1) Me 2) Benny Parker 3) Kassandros 4) Bruce 5) Johann 6) Alice 7) The Beast and 8) Me and The Other Souls.

According to music composing process, Me and The Other Souls for Clarinet Ensemble is a western contemporary music that represents the characteristics of Multiple personality disorder.

**Keywords:** Music composition / Multiple personality disorder / Program music

### Introduction

The creation of art or music in the present, Inspiration for creators to create works are many approaches. It can create from experiences, something that they has seen, emotions of creator in a period of time, interesting literatures, creative's concept for setting creativity method. These creative approaches depend on the creator's wishes and interpretations of the creator, which is unique individual.

Mental disorders or Psychiatric disease has been with human for a long time but the previous era was not important. If you were a mental disorder, you were a disgrace. It was kept a family secret. Someone has been abandoned because of misunderstanding, and improper treatment. Medical science has developed later on, so the understanding of mental disorder has also increased. Mental disorder can be

treated until they are healed. There are not different from other physical diseases. Mental disorder is a disorder or illness that arises from mind or brain. Patients with mental disorder do not need to keep it as a secret because it is embarrassing.

Mental disorders include depression disorder, obsessive-compulsive disorder, and bipolar disorder. Mental disorders are usually the result of physical abuse during childhood, and stress that accumulates until the chemicals in the brain malfunction. Sometimes it develops in response to a natural disaster or other traumatic events like combat. The disorder is a way for someone to distance or detach themselves from trauma.

Multiple Personality Disorder is in Dissociative Disorders categories. Patients have two or more separate personalities, and the personality states alternately show in a person's behavior. It can lead to gaps in memory and hallucinations. These personalities control their behavior at different times.

Information from “ Pob Mor Rama” in Rama Channel was organized by Department of Psychiatry, Faculty of Medicine Ramathibodi Hospital, Mahidol University include that People with Multiple personality disorder have two or more separate identities. Because of Dissociative amnesia, or problems remembering information, These disorders affect a person's emotions and behaviors. These personalities control their behavior at different times. Each identity has its own personal history, traits, likes and dislikes yourself. Multiple personality disorder is associated with overwhelming traumas, or abuse during childhood. There is a history of neglect or abuse in childhood, while other cases are linked to experiences of war, or medical procedures during childhood. Genetic and biological factors are also believed to play a role.

When patients encounter a traumatic situation. They make self-defense mechanism from traumatic situation by cutting off from oneself, and own memory because they felt disliked and did not accept themselves, therefore; they expressed in a different identity. Patients show symptoms when they have physical or mental pain because they felt they are in unsafe condition

Multiple personality disorder was emerged, and published in various styles, such as Biographical book of patients, including “ All of Me” was written by Kim Noble, patient who record his own stories by telling the story of hundreds personalities within one's body are as follows: Boy who speak Latin language, Gay young man, Young woman, Old people etc.

Multiple personality disorder is used in the creation of characters in the cartoon “Total Drama: Revenge of the Island”. It was used to create the character of Split, released in 2016. Split personality is another name for multiple personality disorder. This movie got a good feedback from the audience.

From unique of Multiple personality disorder symptoms, and interesting movie creative, It make the researcher was interested in using Multiple personality disorder to create music composition for Clarinet ensemble. The researcher interpreted Multiple personality disorder behaviors with various composing techniques for representation Multiple personality disorder in Music. Beside the composition, It also raises awareness of illness, and understands psychiatric patients. Some medications may help with certain symptoms of Multiple personality disorder, but the most effective treatment is psychotherapy, such as encouragement from people around them.

## **Objectives**

To create music composition for Clarinet ensemble that inspired by Multiple personality disorder

## **Literature Reviews**

### **Information of Dissociative Identity disorder**

Dissociative identity disorder (DID), previously known as Multiple personality disorder (MPD) is Dissociative disorders. A dissociative disorder is a group of psychiatric disorders. It was characterized by a state of consciousness, memory, self-identity or the perception of the patient's environment is malfunctioning, inconsistent. This anomaly may occur suddenly or gradually happen or the duration of the illness is temporary or chronic. (Lortrakul and Sukanit, 2015)

### **Clinical Manifestations**

The main symptoms of patient have two or more separate personalities. The other personalities have own characteristics, such as background, character, demeanor, as well as having a unique name. The personality states alternately show in a person's behavior.

During the patient's condition of the original personality do not realize that they have other personalities, and cannot remember the situation that happened while they are having other personalities but the second emerging personality may

know personality and what they has done. The transition from one personality to another is instantaneous. The original personality is often weak, sympathetic, depressed, and often goes to see the doctor. The new personality is an opposite behavior, such as aggressive, violent, self-centered. They try to play a superior role or controlling another personality.

This disease is often chronic or may relapse in periodical time. It happens during times of stress on the mind.

### **Musical Style**

Musical style refers to a specific or technique in music style that comes from acting, creativity or performing (Merriam-Webster, 2007). This term is used in many areas including:

**1. Music historical era,** Each music era has a different style of music. And it takes the name of era to call style that composition. For example, Wolfgang Amadeus Mozart composed music in the classical style because Mozart's compositions are in the classical period. Johann Sebastian Bach's compositions are the Baroque style, but this designation is very broad because each era in music history may be divided into sub periods, such as Late Classical period, Late Baroque period, Neapolitan Baroque period.

**2. Style of Composer** refers to composer. Style of Composer is unique. For example, Debussy's style refers to Debussy's composing style with unique techniques.

**3. Style of Musician** refers to the unique individuality of performance. Especially Jazz musicians who use Improvisation, like Louis Armstrong's trumpet technique differ from Mile Davis, despite playing the same song.

**4. Musical Texture** refers to musical texture of song, such as Dynamic, Tempo, Pitch. It is an impression in short time from listening music, e.g., Heavy Style, Bright Style. It describes impression of that song in Musical Texture. It does not refer to Melody, Rhythm or Harmony.

**5. Emotional Style** is an expression from songs, such as exciting, relaxing, calm, scary, which brings those emotions to music style.

**6. Musical Genre** is the most reference style, and confuses as well. It is due to specific type of music. It not only categorizes from style but also influences from society, marketing, Building the identity of musicians, such as Memphis Soul, Acid Jazz, etc.

From identifying style of the song consisted of 6 aspects mentioned above. It is identified from the characteristics or techniques that are outstanding in creative song include that characteristics of Melody, Harmony, Rhythm, Musical Texture, Articulation for creating unique accents of the song in music style.

## Methodology

In music composing process, the researchers began with studying Multiple personality disorder from medical literature. Multiple personality disorder behaviors have two or more separate personalities, and the personality states alternately show in a person's behavior.

From interpretation of Multiple personality disorder symptoms, the researcher came up with the main concepts of creative music composition from symptoms of this disease, which is the application of music composition techniques from various music styles to create this song. It can express various of behaviors from Multiple personality disorder. The researcher studied related Music literatures, and summarized concepts of music composition are as follows:

### 1) Concept of various music style in the same song

Usually in the song has only one music style per song, but sometimes the song can be two or more styles in one song, for example, A Night in Tunisia was composed by Dizzy Gillespie. It begins “Movement A” with Afro-Cuban style , and then it moves to “Movement B”, changing to Swing. In addition, there is a difference chord progression of two movements. “Movement A” plays in chromatic chords, Bass line plays Ostinato. “Movement B” plays chords in the ii-V form, which is commonly used in Jazz music especially for Swing. All of this make sudden changing in tone of song, and give different feelings within the same song.

For “Me and The Other Souls” , the researcher defined 7 personalities. Each movement was presented with different music styles. First movement presents normal expression that is a simple style. And six Movements consisted of music styles are the following:

- 1.1) Normal or Calm expression
- 1.2) Jazz Swing Style
- 1.3) Ancient Greek Music
- 1.4) Depressive Sound
- 1.5) Baroque Style

1.6) Waltz Music

1.7) Primitive Sound

## 2) Concept of Juxtaposition

Musical Texture is relationship between Melody relations. It shows about thickness or lightness, such as thick texture, light texture but definition in 20<sup>th</sup> Century Music does not mean only relationship between melodic line, but also includes all elements of song that can be heard, such as Pitch, Rhythm, Arranging for musical instruments, and Tone Color as well.

Concept of Juxtaposition appears in Ultradian Bipolar Disorder was composed by Hunter Ewen, and The Rite of Spring was composed by Igor Stravinsky. Stravinsky used Juxtaposition many times in his composition. Juxtaposition is a composing method that changes expression of the song. It surprises listeners while listening the song because they cannot predict the upcoming song (Junchomchaey, 2019)

## Creative Research Result

After interpretation of Multiple personality disorder symptoms from medical literature, and other related literatures, the researcher got concept, and form in music composition “ Me and The Other Souls” . The composition is divided into 8 movements: 1) Me 2) Benny Parker 3) Kassandros 4) Bruce 5) Johann 6) Alice 7) The Beast and 8) Me and The Other Souls. Each Movement is as follows:

### First Movement : Me

This movement presents first personality before appearance of other personalities. Music is a simple. It uses 5<sup>th</sup> interval for harmony. It is harmonious and strong. Then, the mind is traumatized by violence situation so the mind is stressed, and distracted. In this part, Klangfarbenmelodie technique is used. It is a technique for spreading the melody to each instrument in the ensemble. Usually in the main melody is played with one instrument or played a melody together. Playing with various instruments is a technique that represents distraction of mind. Then, in the end of this movement, melody plays Retrograde and Invert from the main melody to represent mental disorder. Music structure in this Movement is a Ternary Form.

### Second Movement : Benny Parker

This movement presents personality with Jazz Swing Style. By bringing the main melody from movement to arrange in Jazz sound. It emphasize on 2<sup>nd</sup> beat, 4<sup>th</sup> beat, and weak beat according to the style of Swing rhythm. Eight note Triplet is

used in arranging. The 2<sup>nd</sup> movement is a Improvisation, and Shout part, which is also in the form of Jazz big band writing.

### **Third Movement : Kassandros**

This movement presents personality with Ancient Greek Music, which emphasizes Mode to create melodies according to a principle called “Ethos”. Each mode affects to feelings, mind, or body in some way, for example, Mixolydian mode affects in melancholy and anxious more than Dorian mode. The mode that researcher used in this Movement is Phrygian mode, which gives a thrill feeling refers to ancient Greek warriors. Music structure in this Movement is a Ternary Form.

### **Forth Movement : Bruce**

This movement presents a depressed personality. To create this expression emphasizes on using long notes or suspension. It uses dissonant interval or Tone Cluster for making tension, and uses Dynamic that has a sudden difference to express a frenzied expression. Music structure in this Movement is a Continuous variations form.

### **Fifth Movement : Johann**

This movement presents personality with Baroque Style. It uses popular techniques during the Baroque period, such as Fugue, and Four-part harmony, based on the song writings of the Baroque period, such as Four-part writing, Counterpoint. For music structure in this Movement is a Binary form.

### **Sixth Movement : Alice**

This movement presents personality with Waltz Music in triple simple time, It gives a sense of luxury, funny feeling. Music structure in this Movement is a Ternary Form. At the beginning and the end play chords in ii-v form. In part B is a Bass clarinet solo, and a Shout part according to the Jazz Big Band style.

### **Seventh Movement : The Beast**

This movement presents a savage personality. It focuses on harmony, such as Tone Cluster uses loud, violent, and sarcastic rhythms to representation anger expression in Primitive Sound, which appears in music composition of Russian composers in 20<sup>th</sup> century, such as Igor Stravinsky in Petrushka, and The Rite of Spring etc. Music structure in the Beast is a Continuous variations form.

### **Eighth Movement : Me and The Other Souls**

This movement presents 7 PERSONALITIES from the previous 7 Movements. The 7 Movements are interlaced and played continuously. This movement has sudden

changes in musical styles many times for showing behaviors of Multiple personality disorder. Each personality takes turns showing clearly different behaviors. Music structure in this Movement is a Chain form.

### **Conclusion**

The composition “ Me and The Other Souls” for Clarinet Ensemble was created based on the researcher's own interpretation of the Multiple personality disorder symptoms. The researcher interpreted from medical literature, and other related literatures. It is a music representation of psychiatric symptoms. Beside the composition, It also raises awareness of illness, and understands psychiatric patients through imagination from music.

In music composing process of Me and The Other Souls, the researchers began with medical literature review about Multiple personality disorder, and other related literatures. It was found that, Multiple personality disorder behaviors have unique characteristic. Patients have two or more separate personalities, and the personality states alternately show in a person's behavior.

From interpretation of Multiple personality disorder symptoms to music composition, the researcher interpreted Multiple personality disorder behaviors with various music styles, and edited music for showing different behaviors. When the researcher defined clearly concept of creative music. The researcher created music composition. During the creation, the researchers received suggestions from expert musicians for composition development.

The music composition “ Me and The Other Souls” was published via YouTube on 12 February. 2022. It can be accessed from <https://youtu.be/ajMNOVNygHU>

### **Suggestions**

In creative artworks, such as Painting, Sculpture or Music are interpretation or telling story from the same thing. But they may not always have same or similar work because creator's interpretation is different. It depends on the perspective of interpretation, concepts, imagination, creative method, and presentation. These shows personal abilities of creators that make diversities artworks. They are open minded to new things for the audiences' interpretation artworks according to feelings, experiences, and personal aesthetics of the audiences.

The knowledges that gained from interpretation and creation “Me and The Other Souls songs” combined with previous creative research related to mental disorders so the next creative research, the researcher will use the knowledge to create with other unique and interesting mental disorders.

The researchers expected that Me and The Other Souls music composition can open the perspective of music composition creative works. It promotes applying of the body of knowledge for creative music without limitation in genres of music.

### Reference

- Argamon, Shlomo, Burns, Kevin, and Dubnov, Shlomo. (2010). **The Structure of Style: Algorithmic Approaches to Understanding Manner and Meaning**. Berlin: Springer-Verlag
- Cope, David. (1997). **Techniques of The Contemporary Composer**. The United States of America: Schirmer.
- Dhamabutra, Narongrit. (2009). **Contemporary Music Composition**. Bangkok: Chulalongkorn University Press.
- Domrongchareon, Komtham. (2010). **Baroque Music (1600-1752)**. Bangkok: Faculty of Music, Silpakorn University.
- Junchomchaey, Nithi. (2019). Doctoral Music Composition: “Mental Distortion for Wind Symphony”. **Veridian E-Journal, Silpakorn University 12, 6 (November – December): 1629-1646**.
- Kostka, Stefan. (2006). **Materials and Techniques of Twentieth-Century Music**. 3<sup>rd</sup> ed. Upper Saddle River, NJ: Prentice Hall.
- Lortrakul, Manote and Sukanit, Pramote. (2015). **Psychiatry Ramathibodi**. 4<sup>th</sup> edition. Bangkok: Department of Psychiatry, Faculty of Medicine Ramathibodi Hospital, Mahidol University.
- Merriam-Webster. (2007). **Style**. Accessed January 6, 2022. Available from <http://www.m-w.com/dictionary/style>.
- Michael Cook. (2011). **Contemporary jazz arranging techniques: A study in time, orchestration, and style**, (M.M., CALIFORNIA STATE UNIVERSITY)
- Morgan, Robert P. (1991). **Twentieth-Century Music**. New York: W.W. Norton & Company.
- Paul Everett. (1996) **Vivaldi: The Four Seasons and other Concertos, Op.8**. New York: Cambridge University Press.

Pongsarayut, Sasi. (2553). **Western music: Baroque period and Classical period.**

Bangkok: Chulalongkorn University Press.

Randy Felts. **Reharmonization**, New York: Berklee Press, 2002.

Rehfeldt, Phillip. (1994). **New Directions for Clarinet.** 2<sup>nd</sup> ed. Marylan: Schirmer.

Thomas Benjamin. (1996). **Counterpoint in the Style of J.S. Bach.** New York: Schirmer Books.

Trakulhun, Wiboon. (2015). **Twentieth-Century Music.** Bangkok: Chulalongkorn University Press.

Vaneesorn, Yos. (2016). Music Composition: Tones for Clarinet Ensemble. **Veridian E-Journal, Silpakorn University 9,2 (May-August) : 1750-1768.**

## MUSIC CREATION OF KLONG YAO PAMAA FROM THE ORIGINAL VERSION PAMAA KLONG YAO

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### Abstract

The objectives of music creation of Klong Yao Pamaa from the Original Version Pamaa Klong Yao are to 1) analyze the musical composition of the song “Pamaa Klong Yao” 2) Composing the melody of Burmese long drums and 3) analyze the musical composition of the song “Klong Yao Pamaa” The results of the study has been shown as follows;

Pamaa Klong Yao is a Thai song with a Burmese accent that has a rousing melody in the middle of the song inserting a long drum beat using the C major scale as the main scale. There is a composing style of “compulsory melody” and repeating the melody of the song. The structure of the song's three main parts uses the same melody called "soi" at the end of every verse which use the technique of “pick up beat” and the sudden pause in the song.

The composition of the Klong Yao Pamaa song was inspired and the information obtained from the study was from the documentary evidence and interviews with Thai music experts, incorporating with the introduction of the Pamaa Klong Yao song to analyze the musical composition. There have been the uses the traditional methodology combined with the author's own method with a creative and looking-back perspective and the uses the reverse alternating method that was applied to compose a suitable melody to create a new song.

Klong Yao Pamaa song is a single stage rhythm with the Burmese musical tone rendering an amusing rhythm. The central part of the song has the C major scale as the main scale. Composition style of “compulsory melody” and repetition of melody. The structure of the song is divided into 3 main parts and consists of the lead part and the long drum part. The same melody is used and it is referred to as

“Soi”. At the end of every verse, the Klong Yao Pamaa rhythms are inserted between parts by using the front rhythm of the long drums indigenous to Thai Yai people. Techniques in the song are syncopation style with the uses of flicks and sudden pauses in the song.

Klong Yao Pamaa song is a single stage rhythm with the Burmese musical tone rendering an amusing rhythm. The central part of the song has the scale “C” as the main scale. Composition style of “compulsory melody” and repetition of melody. The structure of the song is divided into 3 main parts and consists of the lead part and the long drum part. The same melody is used and it is referred to as “Soi”. At the end of every part, the Klong Yao Pamaa rhythms are inserted between parts by using the front rhythm of the long drums indigenous to Thai Yai people. Techniques in the song are pick up beat with the uses of flicks and sudden pauses in the song.

**Keywords:** Creative research, Klong Yao Pamaa, Pamaa Klong Yao.

## Introduction

Composing music is important and is an advanced skill since the composers need to study and have experience in Thai music both in theory and in practice before they can create the songs. (Samran Kerdpol, 2559) Composing new songs for Thai music is essential to promoting and inheriting Thai music to exist and develop Thai music into the future. There are many ways of composing traditional Thai songs in ancient traditions; for example, the form of Song Thao, and Song Kred, etc. In addition, there is another interesting model which introduces the accent of foreign songs being used as a guideline for creating the songs in order to create a variety of moods and aesthetics in the style of Thai music. The samples of these are Lao Duangduean song, Khmer Saiyok, Chinese Khim Yai, Khaek Sarai, Pamaa Klong Yao, etc. The composer has seen the value and beauty of composing music styles and accents and therefore, has applied the Burmese accent to compose the Pamaa Klong Yao song. The songs offer a distinctive melody and fun and used as creative guidelines.

Pamaa Klong Yao is a Thai song with Burmese accent. The melody of the song has an aggressive rhythm, repetitive style inserted a long drum beat. A number of well-known musicians prefer to use it as seen in general music, accompanied with

a long drum dance and used to play with a Burmese accent songs. (Naringchai Pitikaratch,2557) Besides this, the Burmese long drum song has been widely used in the performance of “Ram Tha Thoeng” since the Thonburi period. Pamaa Klong Yao songs have historical and musical value. (Thanit Yuupho,2516)

The creation of Klong Yao Pamaa song using creative thinking with different angles and from various perspectives make it possible that the songs will not be sticking to the original thought patterns. This also helps promote new ideas and discover something different. (Kriangsak Charoenwongsak, 2556) If this method is used in composing original Thai songs, it will lead to another way of creating Thai music. For this reason, the composer created a Klong Yao Pamaa song as a guideline for further development of Thai music.

### Research Objectives

1. To analyze the musical composition of the Pamaa Klong Yao.
2. To compose the melody of the Klong Yao Pamaa.
3. To analyze the musical composition of the Klong Yao Pamaa.

### Literature Review

The composing style Thai songs created by Luang Sunthorn (National Artist) refers to the fact that composing Thai songs requires an analysis of melody patterns, unique characteristics and methods of various composing styles with the following concepts. 1) The composition based on ancient traditions 2) The composition with a method that creates a melody from inspiration, own imagination, and ancient traditions harmoniously blended in the song 3) The composition created from the inspiration and imagination of the author (Sano LuangSunthon, 1986)

The Thai composition style of the song created by Kru Samran Kerdphol (National Artist) has been known to have two styles, which are 1 being structured and 2) being independent.

1. Being structured is to compose a song by taking an existing song to compose. The steps are as follows; 1) selecting the original song 2) analyzing the original song 3) “Luk Tuk” must match the “Luk Tuk” of the original song 4) constructing the rhetoric to be consistent together

2. Being independent is the composing of music arising from the creativity of the composer without reference to the existing music. The steps are as follows: 1)

Composing from the overview picture, i.e. composing from “Samchan” of rhythm and then cutting it into “Songchan” and “Chandiaw”; 2) Sticking to the drum rhythm as the main; 3) Tying the verse in each paragraph to have a harmonious melody. (Saowapak Usomvichaiwat, 2669)

Long drums were modeled from Burma for playing and festivities such as Naga ordination. Songkran, weddings, etc., musical instruments used to play together are cymbals, grubs and mongs. (Royal Institute, 1997)

Pamaa Klong Yao play speed at a “Chan diaw” have redundant style and provocative rhythm. The mood of the song focuses on fun. The middle of the song inserts a long drum beat. Musicians like to bring it to general music and use it to play with a foreign language song. (Naringchai Pidokratch, 2557)

### **Creative Methodology**

The composer studied the information by dividing the content information from documents, books, songs, and printed textbook materials. The data collection has carried out by interview sessions. The steps of collecting data are as follows;

1) Studying information from related documents as follows: 1) Documents related to Burmese songs, long drums and others 2) Related creative documents 3) Information from the Internet

2) Interviewing with Thai music experts

3) Analyzing and synthesizing information from relevant documents and from interviews

4) Analyzing the musical compositions of Pamaa Klong Yao song such as its uniqueness, rhythm and melody

5) Composing the melody of Klong Yao Pamaa song

6) Analyzing of musical compositions of song Klong Yao Pamaa such as its uniqueness, rhythm, and melody

### **Creative Work**

The inspiration of Burmese long drum song was inspired from the Burmese long drum song, which is generally known to Thai people for its having fun and uses long drum beats to play. The composer therefore created the song together with the long drum reflecting the culture, which is a popular performance that can be seen in every region of Thailand and in the Tai ethnic group living in Burma. The composer

used the Burmese long drum melody and Thai long drum rhythm incorporated with the long drum rhythm of the Tai ethnic groups in Burma as a model in the creation. The data collection was obtained from the analysis of the Burmese long drum song that was used in composing Klong Yao Pamaa songs. The songs are categorized into 3 main parts with consisting part, namely the lead part and the long drum part. They are shown as follows:

1. Composing the intro part, The composer created an intro before the main part to elevate the mood of the song and make it fun. Start with Klong Yao drum, rhythm using rhythmic instruments such as Ching, Chab and Mong according to the tradition of playing Klong Yao in Thailand. Then lines 4-7 interspersed with a Klong Yao beat. The melody has been used as a component of the melody of the 3 part to create a harmonious connection between the intro part and the melody.

Mong - - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม
Klong - - - ป	- - - พ	- - - -	- - - -	- - - ป	- - - พ	- - - -	- - - -
- - - ป	- - พ พ	- - - ป	- - พ พ	- - - พ	- พ - -	- - พ พ	- - - ป
- - - -	- - - ช	- ล - -	- ท - ด	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ด	- ท - -	- ล - ช	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ช	- ล - -	- ท - ด	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ด	- ท - -	- ล - ช	( - - - -	Klong	- - - -	- - - - )

2. Reversing the structure of Pamaa Klong Yao melodies by composing the last note of every room to make the last note of the song the first note. according to the example of part 1 as follows:

Pamaa Klong Yao structure, part 1

- ม ม ม	- ล - ม	- - ล ม	- ร - ด	- ม ม ม	- ล - ม	- - ล ม	- ร - ด
- ม ม ม	- ล - ช	- ม - ร	- ด - -	- ม ม ม	- ล - ช	- ม - ร	- ด - -
(- ด - ล	ด ช ล ด	ร ด ล ช	ล ด - -	- ด - ล	ด ช ล ด	ร ด ล ช	ล ด - -
- ช - ล	- ช - ม	- - - ร	ด ม ร ด)				

The structure of the Pamaa Klong Yao when the structure was reversed.

ด ร ม ด	ร - - -	ม - ช -	ล - ช -	- - ด ล	ช ล ด ร	ด ล ช ด	ล - ด -
- - ด ล	ช ล ด ร	ด ล ช ด	ล - ด -	- - ด -	ร - ม -	ช - ล -	ม ม ม -
- - ด -	ร - ม -	ช - ล -	ม ม ม -	ด - ร -	ม ล - -	ม - ล -	ม ม ม -
ด - ร	ม ล - -	ม - ล -	ม ม ม -				

3. Switching the song paragraphs, when the song structure is obtained, switch the song paragraphs. according to the following example:

ด - ร -	ม ล - -	ม - ล -	ม ม ม -	ด - ร -	ม ล - -	ม - ล -	ม ม ม -
- - ด -	ร - ม -	ช - ล -	ม ม ม -	- - ด -	ร - ม -	ช - ล -	ม ม ม -
ด ร ม ด	ร - - -	ม - ช -	ล - ช -	- - ด ล	ช ล ด ร	ด ล ช ด	ล - ด -
- - ด ล	ช ล ด ร	ด ล ช ด	ล - ด -				

4. Optimizing music note structure and rhythm.

- ด - รั	- - ม - ติ	- ม - ติ	- ม ม ม	- ด - รั	- - ม - ติ	- ม - ติ	- ม ม ม
- - ด -	รั - ม -	ช - ติ -	- ม ม ม	- - ด -	รั - ม -	ช - ติ -	- ม ม ม
- - - ด	รั ม ด รั	- ม - ช	- ติ - ช	- - ด ติ	ช ติ ด รั	ติ ติ ช ติ	- ติ - ด
- - ด ติ	ช ติ ด รั	ติ ติ ช ติ	- ติ - ด				

5. Some parts of the melody are adjusted to be suitable, harmonious and melodious.

- ด - รั	- ม - ติ	- - ม - ติ	- ม ม ม	- ด - รั	- ม - ติ	- - ม - ติ	- ม ม ม
- - ด -	รั - ม -	ช - ติ -	- ม ม ม	- - ด -	รั - ม -	ช - ติ -	- ม ม ม
- - - ด	รั ม ด รั	- ช - -	ช ม รั - ช	- - - ติ	- - - ติช	- ติ - -	ติช - ติ
- - - ติ	- - - ติช	- ติ - -	ติช - ติ				

**Conclusion**

The creation of Klong Yao Pamaa from the original version Pamaa Klong Yao has been summarized into 3 parts: 1) Musical composition of Pamaa Klong Yao. 2) Melody of Klong Yao Pamaa 3) The musical composition of the Klong Yao Pamaa.

**1. Analyze the musical composition of Pamaa Klong Yao**

The composer analyzed the Pamaa Klong Yao song in terms of Form of composition, structure, rhythm, melody. The main issues were divided into 8 issues as follows:

Issue 1 found that long-drum Pamaa Klong Yao were performed using the Pentatonic scale, with the main sound scale being the Do group, i.e. Do, Re, Mi, Sol, La.

Issue 2 It was found that the Pamaa Klong Yao had a forced melody that followed the melody without translating the melody.

Issue 3 found that Pamaa Klong Yao emphasized the use of playing speed called "Chandiaw" tempo. The use of playing speed to make the song fun in the song, which is a distinctive feature of the long drum band.

Issue 4 found that the Pamaa Klong Yao had a repeating melody of the song paragraph. The example is shown as follows:

ม ม ม ม	- ติ - ม	- - ติ ม	- รั - ด	ม ม ม ม	- ติ - ม	- - ติ ม	- รั - ด
- ม ม ม	- ติ - ช	- ม - รั	- ด - -	- ม ม ม	- ติ - ช	- ม - รั	- ด - -

Issue 5 It was found that the Pamaa Klong Yao song used the style. "Raising the beat", which appears clearly in Section 1, Lines 2 – 3, as shown in the following example.

(- ด - ติ	ติ ช ติ ด	รั ด ติ ช	ติ ด - -	- ด - ติ	ติ ช ติ ด	รั ด ติ ช	ติ ด - -
-----------	-----------	-----------	----------	----------	-----------	-----------	----------

Issue 6 found that Pamaa Klong Yao use the same melody called "Soi" at the end of every verse. as the following example:

(- ด - ล	ด ช ล ด	ร ด ล ช	ล ด - -	- ด - ล	ด ช ล ด	ร ด ล ช	ล ด - -
- ช - ล	- ช - ม	- - - ร	ด ม ร ด)				

Issue 7 found that the Pamaa Klong Yao song had an abrupt pause in order for the Klong Yao drum to take over the role of playing the part, and the pause was to promote the distinctiveness of the Klong Yao drum rhythm.

Issue 8 found that Pamaa Klong Yao had Klong Yao rhythms inserted in parts 2 and 3 as follows:

- - - ช	- - - ล	- - - ด	- - - ร	- ม - ร	- ม - ม	ช ร ม ช	- ม - ม
( Klong	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - - )

### 2. Klong Yao Pamaa Song

The composer composed the melody of the Klong Yao Pamaa song, divided into 3 steps as follows: Step 1 Rewrite all the Pamaa Klong Yao notes by taking the last note as the first note in reverse of the whole song structure. Step 2 Alternating the partial sub-notes. Step 3 Beautiful and fresh as the Klong Yao Pamaa as follows:

#### Klong Yao Pamaa

##### Intro

Mong- - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม	- - - ม
Klong- - - ป	- - - พ	- - - -	- - - -	- - - ป	- - - พ	- - - -	- - - -
- - - ป	- - พ พ	- - - ป	- - พ พ	- - - พ	- พ - -	- - พ พ	- - - ป
- - - -	- - - ช	- ล - -	- พ - ด	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ด	- พ - -	- ล - ช	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ช	- ล - -	- พ - ด	( - - - -	Klong	- - - -	- - - - )
- - - -	- - - ด	- พ - -	- ล - ช	( - - - -	Klong	- - - -	- - - - )

##### Klong Yao

- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	จ จ จ ด	- ด - -	- ด - ด
จ จ จ ด	จ จ จ ด	จ จ จ ด	จ จ จ ด	ด ด ด ด	ด ด ด ด	ด ด ด ด	ด ด ด ด

##### Part 1

- ด - ร	- ม - ล	- - ม ล	- ม ม ม	- ด - ร	- ม - ล	- - ม ล	- ม ม ม
- ด - -	- ร - ม	- ช - ล	- ม - ม	- ด - -	- ร - ม	- ช - ล	- ม - ม
- - - ด	ร ม ด ร	- ช - -	ช ม ร - ช	- - - ด	- - - ล	- ด - -	ล - - -
- - - ด	- - - ล	- ด - -	ล - ช - ด				

##### Klong Yao

- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	จ จ จ ด	- ด - -	- ด - ด
จ จ จ ด	จ จ จ ด	จ จ จ ด	จ จ จ ด	ด ด ด ด	ด ด ด ด	ด ด ด ด	ด ด ด ด

Part 2

--- ช	--- ม	--- ร	--- ด	--- ร	--- ด	--- ล	--- ช
- ช - ช	- ม - ม	- ร - ร	- ด - ด	- ร - ร	- ด - ด	- ล - ล	- ช - ช
--- ด	ร ม ด ร	- ช - -	ช ม ร - ช	--- ด	--- คีตช	- ด - -	คีตช - ด
--- ด	--- คีตช	- ด - -	คีตช - ด				

Klong Yao

- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	จ จ จ ต	- ต - -	- ต - ต
จ จ จ ต	จ จ จ ต	จ จ จ ต	จ จ จ ต	ต ต ต ต	ต ต ต ต	ต ต ต ต	ต ต ต ต

Part 3

----	--- ช	- ล - -	- ท - ด	ร ด ร ท	ด ล ท ช	ล พ ช ม	พ ร ม ด
ร ด ม ร	พ ม ช พ	ล ช ท ล	ด ท ร ด	- ท - -	- ล - ช	ล ช ท ล	ด ท ร ด
ม ร พ ม	ช พ ล ช	ล ช ล พ	ช ม พ ร	ม ด ร ท	ด ล ท ช	- ล - -	- ท - ด
ร ด ร ท	ด ล ท ช	ล พ ช ม	พ ร ม ด	ร ด ม ร	พ ม ช พ	ล ช ท ล	ด ท ร ด
- ท - -	- ล - ช	ล ช ท ล	ด ท ร ด	ม ร พ ม	ช พ ล ช	ล ช ล พ	ช ม พ ร
ม ด ร ท	ด ล ท ช	- ล - -	- ท - ด	--- ด	ร ม ด ร	- ช - -	ช ม ร - ช
--- ด	--- คีตช	- ด - -	คีตช - ด	--- ด	--- คีตช	- ด - -	คีตช - ด

Klong Yao

- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	จ จ จ ต	- ต - -	- ต - ต
จ จ จ ต	จ จ จ ต	จ จ จ ต	จ จ จ ต	ต ต ต ต	ต ต ต ต	ต ต ต ต	ต ต ต ต

3. Analysis of the musical composition of the Klong Yao Pamaa Song

The creation of Klong Yao Pamaa song has its own composition which is as follows:

1) Klong Yao Pamaa has a structure of the song divided into 3 main parts and the other components are the intro part and the Klong Yao Part. The details are as follows. The Intro part is 7 lines long according to the Thai notes. Part 1 is 3 line and a half lines. Part 2 is 3 lines long. Part 3 is 7 lines. Klong drum part is 2 lines. Can be the song structure is shown as follows: Intro part / Klong Yao part / part 1 / Klong Yao part / part 2 / Klong Yao part / part 3 / Klong Yao part /

2) Klong Yao Pamaa have an intro before entering the melody by using drums and instrumental accompaniment to convey the identity of Klong Yao and create a common mood of the 1 st stage, then the melody is inserted in the 4 th line alternating with Klong Yao beats to raise the mood to create the second stage before entering the song as the following example:

Mong- - - ม	--- ม	--- ม	--- ม	--- ม	--- ม	--- ม	--- ม
Klong- - - ป	--- พ	----	----	--- ป	--- พ	----	----
--- ป	-- พ พ	--- ป	-- พ พ	--- พ	- พ - -	-- พ พ	--- ป
----	--- ช	- ล - -	- ท - ด	( ----	Klong	----	----
----	--- ด	- ท - -	- ล - ช	( ----	Klong	----	----

3) Klong Yao Pamaa use the do sound of Thai music as the main sound in composing, such as the sound of do re mi sol la as in the following example:

- ด - รั	- ม - ไล	- - ม ไล	- ม ม ม	- ด - รั	- ม - ไล	- - ม ไล	- ม ม ม
- ด - -	- รั - ม	- ช - ไล	- ม - ม	- ด - -	- รั - ม	- ช - ไล	- ม - ม

4) Klong Yao Pamaa use trajectory notes such as fa and ti to enhance the color of the song. As an example in Section 3 as follows:

----	---ช	- ไล - -	- ท - ด	ร ด ร ท	ด ล ท ช	ล พ ช ม	พ ร ม ด
ร ด ม ร	พ ม ช พ	ล ช ท ล	ด ท ร ด	- ท - -	- ไล - ช	ล ช ท ล	ด ท ร ด

5) Klong Yao Pamaa use the style of Tai Yai long drum beats. which is a Tai ethnic group living in Burma as the following example:

- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	- จ จ จ	จ จ จ ต	- ต - -	- ต - ต
จ จ จ ต	จ จ จ ต	จ จ จ ต	จ จ จ ต	ต ต ต ต	ต ต ต ต	ต ต ต ต	ต ต ต ต

6) At the end of every part of the song, the same melody is used called “Soi” as in the following example:

--- ต	ร ม ต ร	- ช - -	ชมร - ช	--- ต	--- ตช	- ต - -	ตช - ต
--- ต	--- ตช	- ต - -	ตช - ต				

7) Klong Yao Pamaa use style “Raising the beat” in Part 1, line 2, as in the following example:

- ด - -	- รั - ม	- ช - ไล	- ม - ม	- ด - -	- รั - ม	- ช - ไล	- ม - ม
---------	----------	----------	---------	---------	----------	----------	---------

and appear clearly in the range of “soi” every segment as in the following example:

--- ต	ร ม ต ร	- ช - -	ชมร - ช	--- ต	--- ตช	- ต - -	ตช - ต
--- ต	--- ตช	- ต - -	ตช - ต				

8) Klong Yao Pamaa use a forced melody style in which the instrumental must be performed according to the compulsory melody without alteration of the melody.

9) Klong Yao Pamaa use the speed of playing called "Chandiaw" to make the song fun and maintain the distinctive characteristics of the Klong Yao band.

10) Klong Yao Pamaa use an abrupt pause at the end of every verse to take on long drums to take over the next stanza to carry on to the next section and to accentuate the rhythm of the Klong Yao drum.

11) Use Klong Yao drum to connect all parts.

12) The Klong Yao Pamaa uses a repeating melody, with the last 4 room notes repeating the melody with the first 4 room, as in the following example:

- ด - รั	- ม - ไล	- - ม ไล	- ม ม ม	- ด - รั	- ม - ไล	- - ม ไล	- ม ม ม
- ด - -	- รั - ม	- ช - ไล	- ม - ม	- ด - -	- รั - ม	- ช - ไล	- ม - ม

## Discussion

Creation of Klong Yao Pamaa from Pamaa Klong Yao Inspired by the Klong Yao Pamaa according to Thanit Yoo Pho (1973) that the Burmese long drum song has been used in the performance of "Ram Tha Thoeng" since the Thonburi period. It is also a song that is outstanding for its fun melody, popular with Thai musicians and known to Thai people in general according to Narongchai. Pitakarat (2014) said that the Pamaa Klong Yao has a fun mood. Musicians popular to play in general, which corresponds to the Royal Institute (1997) said that Pamaa Klong Yao are popular to play in festive events such as Naga ordination, Kathin ceremony, Songkran, etc. Pamaa Klong Yao is therefore a song that has historical value, social value and musical value.

Composing Klong Yao Pamaa, the composer studied information from documents and interviews with experts. The composing method is based on ancient traditions and the author's imagination which is consistent with the principles of Thai music composition of Kru Sano Luang Sunthon, the National Artist (1986). 1) Authored based on ancient traditions 2) Composed by a method of creating melodies inspired by one's own imagination with a mixture of ancient traditions 3) Composed from the inspiration and imagination of the author. Then analyze the musical composition of the song "Pamaa Klong Yao" which corresponds to Kru Samran's principles of Thai composition. Kerdphol (National Artist) in Saowapaek's research Udomwichaiwat (2016) on the analysis of Kru Samran Kerdphol's identity as a teacher of Thai music, mentioned that the structured composition is the composition of songs by using existing songs to compose. 2) Analyze the original song. 3) The structure of the song must match the original song. 4) Create a melodious song.

The composer therefore composed the song "Klong Yao Pamaa" by applying the analyzed data to compose the song. using the principles of Thai music theory according to ancient traditions, combining the author's approach, divided into 3 steps: 1. Analyze the musical composition of Burmese long drum songs. for the principles of music to be used as a model for composing 2. Create melodies of Burmese long drums from Burmese long drum songs. 3. Analyze the musical composition of the Burmese long drum song. The results were as follows:

### 1. Musical composition of Pamaa Klong Yao

Pamaa Klong Yao appear, the method of composing melodies is divided into 7 main points as follows:

- 1) Perform a melody using in DO scale
- 2) Compose a compulsive melody.
- 3) Emphasize the use of speed in "Chandiaw" performances.
- 4) There is a repeating melody of the song paragraph.
- 5) Styles are applied. "Raising the rhythm"
- 6) The same melody called "Soi" is used at the end of every part.
- 7) There is a sudden pause in the melody.
- 8) Use Klong Yao to join every part.

### 2. The melody of Klong Yao Pamaa

melody of Klong Yao Pamaa It was born from a study analyzing the melody of Pamaa Klong Yao as a model. The composer mainly uses Do scale to create the same brightness and tone as the Pamaa Klong Yao. which the sound scale is commonly used in composing original Thai songs that use speed to play and give a feeling of freshness and use a single rhythm to create a sense of fun which represents the way of life of Thai people who like to have fun Writing is divided into 3 steps as follows: Step 1 Rewrite all notes of Pamaa Klong Yao by taking the last note as the first note in reverse of the whole song structure. Step 2. Swap some sub-notes. Step 3 Tuning the melody to be beautiful and fresh

### 3. The musical composition of the Klong Yao Pamaa.

The Klong Yao Pamaa has the following musical elements:

- 1) There is a structure to create a song divided into 3 main parts and components such as the Intro part and the Klong part has the following structure:  
intro part / Klong part / Part 1 / Klong part / Part 2 / Klong part / Part 3 / Klong part /
- 2) There is an intro part before entering the melody by mainly using Klong Yao.
- 3) Use the Do scale as the main scale in composing.
- 4) Use note Fa and Ti as passing note to create color of song.
- 5) Use the style of playing the long drum beats of the Tai Yai people.

- 6) Use a melody called "Soi" at the end of every part.
- 7) Apply style styles "Raising the rhythm"
- 8) Use a compulsory composing style.
- 9) Emphasis on rhythmic rate "Chandiaw" maintaining the distinctive characteristics of Klong Yao performances.
- 10) Use a sudden melody pause at the end of every part.
- 11) Use a repeating melody operation.
- 12) Use Klong Yao to connect all parts.

### Suggestions

There should be a study, research and creation of Thai music by creating and developing from old Thai songs or folk songs of different regions in Thailand in order to further develop traditional Thai music styles and folk songs and make a variety of choices. It should also provide inspiration and creativity for Thai musicians and composers to create alternative songs without adhering to the traditional framework by organizing promotional activities. Thai music such as creative Thai music contest Creative Thai music composition contest or seminar on creative Thai music development for further academic development

### References

- glory Charoen Wongsak (2 0 1 3 ). *Creative Thinking*. Bangkok: Publisher.Success Publishing.
- Narongchai Pitakarat. (2 0 1 4 ). *The Encyclopedia of Thai Songs*. Nakhon Pathom: Mahidol University Press.
- Thanit Yoopho. (1973). *The Art of Dance Drama or Handbook of Thai Dramatic Arts*. Bangkok: Fine Arts Department.
- Royal Academy. (1 9 9 7 ). *The Encyclopedia of Thai Music Vocabulary Kita-music sector*. Bangkok: Mahachulalongkornrajavidyalaya University.
- Sanoh Luang Soonthorn. (1986). *Principles of Thai music composition*. Bangkok: Royal Thai Army School of Music.
- Saowapak Udomwichaiwat (2016). *Analysis of the identity of Thai music teacher of Kru Samran Kerdphol, National Artist*. Master of Education (Music Education Department). Bangkok: Faculty of Education, Chulalongkorn University.

## STUDY OF CREATIVITY AND SUCCESS IN THE POLICE CAREER

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### Abstract

This research aimed at studying creativity and success in a police career, exploring factors that affect creativity and success in the police career, and examining recommendations for creative development and success in the police career. Research tool was a questionnaire, which was designed to collect data from the police in three South North provinces, such as Kamphaeng Phet, Nakhon Sawan, and Phichit, in a total of 300 persons. Data were analyzed by mean, standard deviation, correlation, and multiple regression. The research results were found that most of respondents were men with an average age of 34.78 years, and an average of 5.88 years of work experience. They had creativity and success in a police occupation to be at a high level. Factors affecting the success of a police career were: personality and professional competence, which could be predicted by 61.62 percent, respectively. The respondents suggested that for career advancement, the police should act responsibly and be committed to serving the people (34 polices), they should continuously seek up-to-date knowledge (28 polices) for salary, and they should take pride in their performance of honor (25 polices) for their honorable position.

**Keywords:** creativity; success; police occupation

### Introduction

The police in Thailand are government officials or officials affiliated with the Royal Thai Police, which are government agencies not affiliated with the Prime Minister's Office, Ministry or bureau, but it has a position as a department. Under the command of the Prime Minister, the police are responsible for patrolling, maintaining the peace, arresting and suppressing criminals. They are persons who have a great responsibility to protect to bring peace to the citizens of the country.

However, a police career is a career that is related to the way of life of people in society, because the police are responsible for patrolling, maintaining the peace, arresting and suppressing illegal offenders, and are those who have a great responsibility to protect to bring peace to the citizens of the country. As a result, it is an honorable career, which is a sacrifice for the peace of the country and the people. There are called names according to their responsibilities, such as the Police, Fire Police, Water Police, Border Patrol Police, Railway Police, Forest Police, Traffic Police, Metropolitan Police, Highway Police, Provincial Police, Secret Police, Wang Police, Council Police, Special Police, and Royal Police, etc.

According to the National Police Act B.E. 2547, the police's powers and duties are defined in Characteristics 1, General Chapter, Section 6. The Royal Thai Police is a government agency with a status as a juristic person under the supervision of the Prime Minister. Also, the police have the powers and duties as follows: 1) Security for the King, Queen, the Heir to the Regent; royal family His Majesty's representative and royal guests 2) supervise, control and supervise the operations of police officers operating in accordance with the Criminal Procedure Code; 3) prevent and suppress criminal offenses; 4) maintain peace and order. Public safety and the security of the Kingdom 5) Any other operations as prescribed by law to be the powers and duties of the police or the Royal Thai Police 6) Assisting in the development of the country as assigned by the Prime Minister 7) Taking any other actions to promote and support to operate in accordance with the powers and duties under (1) (2) (3) (4) or (5) to be effective. In the case where a law establishes a criminal offense for a specific act and falls under the powers and duties of the police officer or the Royal Thai Police under (3), (4) or (6), a royal decree transferring powers and duties under (3), (4) or (6) shall be enacted (3) (4) or (5) only in respect of all or part of the aforementioned criminal offense to be the powers and duties of the agency or any other competent official. In such case, the police officials and the Royal Thai Police Office shall be discharged from all or part of such powers and duties. The competent officials of the agencies as prescribed in such Royal Decree shall be deemed administrative or police officials, inquiry official or senior administrative or police officer under the Criminal Procedure Code, as the case may be, as prescribed in the said royal decree.

As the population grows, the country needs more and more police in the shadows in order to provide care to prevent and suppress dangers from occurring. Thus, it is shown that the police career is still in demand. Success in a police career

is what motivates a person. This causes people to devote themselves to reaching the goal, determination, determination, and perseverance in the practice for success and satisfaction of the individual (Napadol, 2002: 20). Self-efficacy is one of the factors that support the success in a police career. According to Bandura (1986: 391), he said that self-efficacy It is important and affects the actions of a person who is able to manage and carry out the behavioral actions to achieve a defined goal.

From the problems mentioned above, the topic is therefore interesting to study creativity and success in the police career to benefit the development of success and career advancement of the Thai police.

### **research objectives**

1. To study creativity and success in the police career.
2. To explore factors that affect creativity and success in the police career.
3. To suggest guidelines for creative development and success in the police career.

### **Literature Reviews**

Bandura (1982) used the term “Perceived Self-Efficacy” to define it. Self-efficacy refers to how a person makes decisions about the ability of one's own to manage and implement behavioral actions to achieve a defined goal.

Berry (1987) defines self-efficacy is a person's ability to manage the desired objectives. where the person is aware of what they are capable of and will not overestimate what they are facing.

According to Kelly and Barsade (2001), personality refers to a behavioral pattern characterized by a combination of thoughts and emotions, which determines that each individual can adjust himself to suit the living conditions. As a result, personality makes each person different.

According to Ribereiro and Borba (2016), personality is a pattern of behavior that expresses a person's qualities, and what shows these qualities are attitudes, opinions, values, beliefs and ideals.

Rosenbaum (1984) defined career success is to promote and support the change of status in the organization. It is a person's perception of the professional advancement they have achieved through subjective and multiple-choice professional achievements.

Gattiker and Larwood (1988) defined career success is a person's perception of the external structure and inner feeling that arises from consideration of success, personal satisfaction, and recognition from colleagues as well as satisfaction in the progress of the organization.

DuBrin (1994) states that career success means starting with personal objectives and values. It's the belief that works as well as have to practice sequentially.

Jaskolka, et al (1995) defined career success is a positive psychological outcome or achievement accumulated from past experiences during a person's working life.

Melamed (1995) states that career success is defined as the number of times a promotion is received or a salary increase is received during the working period including being assigned responsibilities and management.

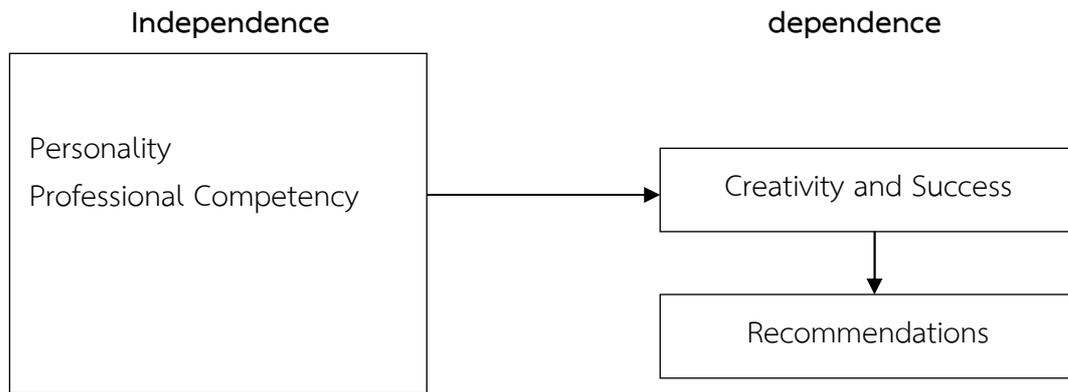
Chantanich (2002) defined personality that personality means everything that molds to be and stays in a person, whether they are strengths or weaknesses, which made him different from the others until unlike anyone else in the world.

Wichit (2002) defined that personality is expression of human behavior which is a joint reaction of various systems in the human body, such as emotions, thoughts, attitudes, intelligence, abilities, learning, experiences, motivations, etc., accumulated since birth, how much they exist.

Sri Ruen (2003) gave the definition of personality that personality is individual characteristics in various fields both the outside and the inside. The external part is the visible part such as body shape, facial expression, manners, dressing, speaking, sitting, standing. The inner part is the part that is difficult to see, but may be known by inference, such as intelligence, aptitude, personal temperament. aspirations, wishes, philosophy of life, values, interests.

In summary, creativity and career success in the police as reflected in the literature review revealed that personality and professional competence were important components and were positive correlations. That is to say, when a police officer has a good personality, it affects his career progression. On the other hand, vocational competence is an individual skill that must be continuously trained in order to develop prevention and suppression skills. (Figure. 1)

## Conceptual Framework



**Figure. 1:** conceptual framework

## Research Methodology

### Research patterns/methods

This research is quantitative research.

Creativity and success consisted of 1) career advancement 2) salary 3) position

Factors affecting creativity and success include personality, professional competence.

### Population and sample

1. The population used in this research was police officers.
2. The sample group used in this research study was police officers, which there are variables used in research studies.

1. The status of the respondents are as follows:

- 1.1 Gender
- 1.2 Age
- 1.3 Experience

2. Independent variables are personality and professional competence.

3. The dependent variables were creativity and success, consisting of 1) career advancement 2) salary 3) position.

### Research Tools / Data Collection Methods

Data were collected from a questionnaire with a sample of 300 polices in three South North provinces, such as Kamphaeng Phet, Nakhon Sawan, and Phichit, in a total of 300 persons.

### **Data analysis**

The personal data of the respondents were analyzed descriptively. Factors were analyzed by correlation and multiple regression equations.

### **Results**

Most of respondents were men with an average age of 34.78 years, and an average of 5.88 years of work experience. They had creativity and success in a police occupation to be at a high level. Factors that affect the success of the police are: personality and professional competence which can be predicted by 61,62 percent, respectively. The respondents suggested that for career advancement, the police should act responsibly and be committed to serving the people (34 polices), they should continuously seek up-to-date knowledge (28 polices) for salary, and they should take pride in their performance of honor (25 polices) for their honorable position.

### **Discussions**

Most of the police were males and were 5.88 years old. Male is a strong sex. It has strength that is superior to the female sex. In addition, males are more effective at suppressing or arresting suspects than females with less strength. However, female police officers may not be suitable for coping in situations of force, but are better suited to office police handling paperwork and public service work. According to the results of this research, females are fewer than males, which is normal in police careers. The findings are in line with Riberiro and Borba's findings that women police should be more active in the office than taking risks in dangerous situations (Riberiro and Borba, 2016). Moreover, it is consistent with Melamed's findings, female police officers are required to be more secure than males when taking on specific roles in offices where most of the work is documentary and public service. (Melamed, 1995).

From the research results, it was found that the career of a police officer can be advanced because of the competence in the police profession. Well-performing cops tend to have good personalities through health-consciousness such as exercise, healthy eating, and adequate rest. This makes the police ready to perform their duties in protecting the people. However, there were negative reports that if any

police officer wants career advancement, they will have to make money to pay the person who can offer them success.

From the research results, it was found that the career of a police officer can be advanced because of the competence in the police profession. Well-performing cops tend to have good personalities through health-consciousness such as exercise, healthy eating, and adequate rest. This makes the police ready to perform their duties in protecting the people. However, there were negative reports that if any police officer wants career advancement, they will have to make money to pay the person who can offer them success. For example, they may use the money in exchange for pre-purchased exams in the expectation of passing them. This act is illegal. And, they may eventually end their future in the police career.

According to the research, the factors affecting the success and advancement of a police career are personality and professional competence. Personality produces credibility, while professional competence is an academic and professional skill that can be measured and assessed. Professional police skills will help the police gain experience in the field of suppression. It has made it possible to manage a wide range of litigation into tangible empirical works. It also became an important lesson for being able to take the promotion exam. Consequently, professional police skills must be continuously practiced in the form of police skills enhancement activities. The government should provide adequate funding for training in police affairs. However, the project budget should be used appropriately according to the circumstances by prioritizing the project by fiscal year cycle.

Based on research on the recommendations, police should be proud of their profession by paying attention to their mission critical to preventing wrongdoing. This may be because the crime or criminal must be dealt with honest and professional police in order to gain public trust. When people have confidence in the performance of the police, they fully cooperate and support the police. on the contrary If the public sees the police behaving badly, they will not cooperate and do not help the police, such as giving no clues about the case. This will make it difficult for the police to act. When people have confidence in the performance of the police, they fully cooperate and support the police. On the contrary if the public sees the police behaving badly, they will not cooperate and do not help the police, such as giving no clues about the case. This will make it difficult for the police to act.

Consequently, whistle-blowing to the police depends on their trust in well-behaved policemen and role models for society.

However, giving a whistleblower to the police is a risk to the whistleblower. Consequently, the police must make arrangements to protect the public from harm by concealing their personal status so that no harm will occur. Moreover, Rewards or compensation should be provided after the secretive arrest of the perpetrators is carried out in order to boost the morale of the police officers. In addition to being committed and sincere in the performance of their duties, the police need to continually seek knowledge as today's forms of crime are becoming more complex. Therefore, it is difficult to keep up with the techniques and methods of illegal conduct. Once learned, the police are able to resolve cases efficiently and quickly.

Although the police promotion exam is difficult, it challenges your determination to pass the exam for stability and career advancement. Undercover police will have to work hard to pass the exams at higher ranks in order to earn higher salaries. The salaries of the police in the warrant class may not be very high. From time to time there was a news story in the newspapers that the police were often corrupt and extorted the villagers. There was also negative data indicating that police stuffed innocent people with drugs or charged exorbitant fees. This may be partly because police careers are so low-paying that they have to find other avenues to earn money, sometimes even illegally getting involved.

Moreover, the police have to constantly improve themselves in order to advance in their careers. One of the important things is continuing education that will require a great deal of diligence to achieve success. Although highly educated police have career advancement advantages, low incomes may be due to the patronage police system where one who is close to a supervisor has the opportunity to advance in career advancement. Consequently, the police should be proud of their profession and not commit corruption that harms themselves and their families.

## **Suggestions**

### **Suggestions for development**

According to the research, the factors affecting creativity and success are personality and professional competence. Therefore, relevant agencies should focus on the development of personality and professional competence as follows:

1) Police departments should focus on police personality training through activities that promote personality development.

2) Police departments should promote personality development by inviting public health experts to educate them on beneficial dietary practices to prevent obesity.

3) Police agencies should promote the preparation of police professional competence development projects from experts in prevention and suppression.

4) Police agencies should continually develop police competency training programs by defining a year-round development plan from award-winning and reputable professionals.

### **Recommendations for research**

The results of the research were also found that education of professional competence was the key factor for creativity and success. Therefore, there are suggestions for further study as follows:

1) The development of police professional competence should be studied in incident response situations.

2) The development of a program should be investigated to promote professional competence in the police.

3) The development of police professional competence should be examined in various positions.

### **Reference**

- Bandura, A. 1982. **"Self-efficacy Mechanism in Human Agency"**, American Psychologist. 37 (April 1982), 122-147.
- Berry, J.W. and U. Kim. (1987). **"Acculturation and Mental Health", Cross-Cultural Psychology and Health: Towards Applications**. London: Sage.
- Chantanich Asawanon. (2003). **Techniques and Personality Development**. Bangkok: Center for Academic Promotion. (in Thai)
- Gattiker, U.E. and Larwood, L. (1988). Predictors for Managers' Career Mobility, Success, and Satisfaction. **Human Relations**. 41 (8), 569-591.
- Kelly, J.R, Barsade, S.D. (2001). **Mood and Emotions in Small Groups and Work Teams**. Organizational Behavior and Human Decision Processes. 86 (1), 99-130.

- Riberiro, E.A., and Borba, J. (2016). Personality, Political Attitudes and Participation in Protests: The Direct and Mediated Effects of Psychological Factors on Political Activism. *A Journal of the Brazilian Political Science Association*. 10 (3), 1-33.
- Rosenbaum, P.R. (1984). The Consequences of Adjustment for a Concomitant Variable That Has Been Affected by the Treatment. *Journal of the Royal Statistical Society. Series A (General)*. 147 (5), 656-666.
- Sriruen Kaewkangwan. (2006). *Developmental Psychology*. Bangkok: Phrae Pittaya International Printing Press. (in Thai)
- Wichit Awaklu. (1997). *Personnel Training and Development*. Bangkok: Chulalongkorn University. (in Thai)
- DuBrin, A. J. (1994). Sex differences in the use and effectiveness of tactics of impression management. *Psychological Reports*, 74(2), 531-544.
- Jaskolka, G., Beyer, J. M., & Trice, H. M. (1985). Measuring and predicting managerial success. *Journal of Vocational Behavior*. 26, 189-205.
- Melamed, T. (1995). Career Success: The Moderating Effect of Gender. *Journal of Vocational Behavior*. 47 (1), 35-60.

## SURVEYING ON MUSICAL AWARENESS OF HIGH SCHOOL STUDENTS AT GRIMONA MUSICAL INSTITUTE OF CHANGSHA, CHINA

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### Abstract

Music awareness constitutes a very important link of quality education. Music awareness can make students appreciate the beauty of life and produce zest to the life. Music awareness can be cultivated through music education, which embraces features such as instruments and voices, elements, and circumstance. In China, music lessons in deed run through the compulsory education of K12. Even though in senior high school, music lesson is still a program as a part of quality education. The essay is set to discuss the way of high school students' music awareness as well as its mutual influence with music education based on a survey conducted at Grimona Musical Institution in China.

**Keywords:** Music awareness, Music education

### Introduction

Music awareness covers a diversity of elements from identifying the basic pitch and tempo to forming a distinct music appreciation and expressing emotions via music. Mastering an instrument and basic music theory is prerequisite of individual music awareness. Furthermore, students should be imparted cognitive-developmental psychology that is an effective means to systematically utilize knowledge about music, forming an important part of music awareness. Therefore, we can analyse two part of constituting music awareness, namely music theory and music cognitive.

In terms of music education in China, students are classified into professional and amateur since they enter into junior high schools, so what they accept music education is different, in which the professionals step up the formal and systematic music education, and amateurs only regard music as a hobby. In addition, pedagogy employed by teachers can also exert influence on students' music awareness. Music pedagogy is related to the China's education development. Compared with Europe and America, China stepped

into music education with a slower pace, and meanwhile, the education lays an emphasis on academic subjects. Taking the education means into account, we can see a complex status quo on music education in China. On the ground of the situation, students in senior high school must have distinctive music awareness. Under such circumstance, the researcher is willing to have a basic idea about music awareness of high school students' music awareness, and how they embody their music awareness. The research needs to observe behaviour and performance and to interview students' thoughts and ideas via the survey at Grimona Musical Institution, and finally to understand the real situation about the students' music awareness and music pedagogy behind it.

### Objective

1. To comprehend the situation of student's music awareness in the music classroom.
2. To know the student's musical awareness expression.

### Literature Review

1. The Relationship between Mindfulness of Musicians and Stage Performance
2. Music Experiences and Learning
3. Cultural Awareness Expression and Music Practice
4. Teaching Methods
5. Psychological Development of musical consciousness

### Conceptual Framework

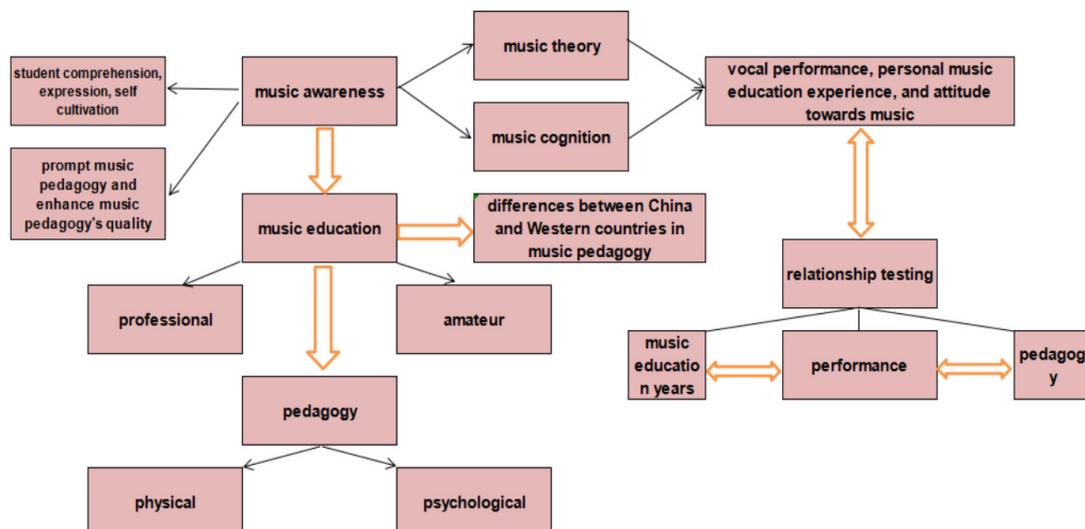


Fig.1 Conceptual Framework

## Research Methodology

### Introduction

This part presents the purpose of the study under the following headings: type of research, scope of the research, research tools, processes of work, research of methods and data analysis.

#### 1. Type of Research

The research is an experiment, aiming to collect data objectively. The data may come from more than 100 high school students who are the students in Grimona Musical Institute, so it is a quantitative research, based on which I will get the result of experiment to analyse musical education in Changsha of China.

During the research, the researcher communicates with students about their understanding to vocal music or other instrument as well as their thoughts to their own performance. Meanwhile, the research will record the response and performance of the students. The question also covers their pedagogy on music performance regardless of either vocal or instrument.

Finally, according to the collected data, subjectively and objectively, the researcher will make marks for their performance and get statistics from collected data to analyze the musical awareness and education.

#### 2. Scope of Research

##### 2.1 Implementation

The research arranged the survey at Grimona Music & Instrument Training Institution where was located at Changsha, the capital of Hunan province. During the preparation, the charger of the institution expressed to support the interview and research through providing a multifunctional room to implement the survey. To students who failed to come to the site, I sent digital questionnaire to them. Moreover, the charger arranged a teacher to assist me to understand the conditions of students. In order to improve students' comprehensive quality, the principal decided to reserve a cope of questionnaire record as file.

However, due to the epidemic situation, all the questionnaire data can only be collected through the "Questionnaire Star" software

##### 2.2 Population and sample

There were 100 students taking part in the survey who aged from 14 to 17 years old. Finally, we selected 30 students by random sampling, all of them answered questions on the questionnaire about musical awareness.

### 3. Research of Tools

3.1 Interview Form

3.2 Questionnaire Form

3.3 Observation Form

### 4. Processes of Work

This is done through field research, internet access to materials, and review of academic papers by relevant academics.

### 5. Research of Methods

The research adopted quantitative surveying method. that surveyed 100 students from various high schools through a questionnaire. The research tool includes random sampling and IOC.

### 6. Data Analysis

6.1 Utilizing SAS program, the researches get the average scores about musical awareness of high school students in Changsha of China.,and consult the literature and compare with the data of European and American countries. Finally analyse and summarize.

6.2 Through the questionnaire survey of students, we can know their music learning achievements and music learning background.

### Result:

1. The title of the thesis I am writing is Surveying on Musical Awareness of High school Students at Grimona Musical Institute of Changsha, China

the location of the survey is located in the Grimona school in Changsha, a central province of China. The research adopted quantitative surveying method .

As far as the student is concerned, music awareness will follow the whole life of a person, which will become an ability of an individual to appreciate or create music. Aesthetic appreciation will improve the outlook of the world and quality of an individual.

As far as the teacher is concerned, The cultivation of music consciousness will be conducive teachers to inspiring the perception of students to other arts regardless of any form and producing unique insight about aesthetics.

As far as the school is concerned, The improvement of students' overall music quality is helpful to enhance the competitiveness of the school.

As far as society is concerned, the whole quality of a nation will be improved to a senior level on appreciating art and music. Music can be employed to express feelings

and experience of a nation like epics, allowing the rest of the world to understand the nation and produce resonance for further cultural exchange. Furthermore, improved music awareness will enhance national people’s quality and aesthetics appreciation will boost cultural industry and the product designing of various industries which will create more revenue for the country as well as the people.

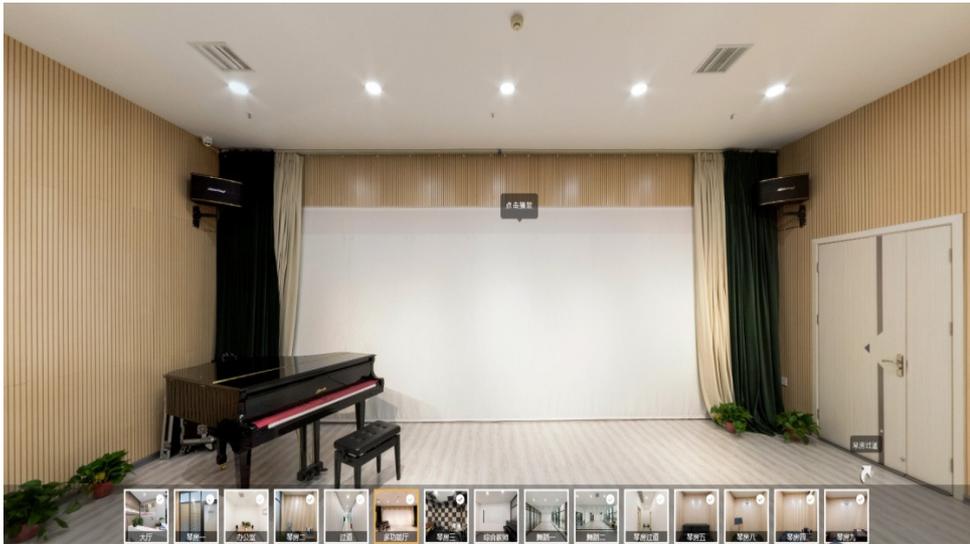


Fig.2 The multifunctional hall

2. Result of questionnaire

All of students lived in Hunan province, and they were preparing for attending professional musical Institution

Name	Age	Gender	Specialty	Specialty years
Zhao Xiaoyue	14	Female	Vocal Music	9
When did you start your music learning?			5 year old	
Why have you kept the music learning?			An interesting	
In your music class, what skills of vocal music or instrument does your teacher impart to you? And could you give me the specific examples?			Abdominal breathing method, chest resonance method, and oral cavity pronunciation method	
Before start a new music or song, could you understand the rhyme and style independently in the light of your music expertise taught by your teacher before?			Yes, I could. But I will scan the score before trying it.	
In the performance, how could you control your body?			Standing straight and open the shoulders for making full preparation	
Could you imitate a song after listening to it for the first time?			Yes, of course.	

Fig.3. The sample of questionnaire

The Motivation for Learning Music (MLM) questionnaire: Assessing children's and adolescents' autonomous motivation for learning a musical instrument (G.Comeau.etal. 2019).

Students Vocal Music Skills and Psychological quality remarks

N=20 Scale range 1-7

Gender	Age	Vocal Skill	Audition	Understanding to the song
Boy	14	5	7	5
Boy	14	4	6	5
Girl	14	7	6	5
Girl	15	4	5	4
Boy	15	3	4	3
Girl	15	5	7	5
Girl	15	5	6	6
Girl	15	5	5	4
Boy	15	5	6	3
Boy	16	5	6	4
Girl	16	4	4	4
Girl	16	5	6	4
Boy	16	6	5	5
Girl	17	6	5	4
Girl	17	5	3	3
Girl	17	5	4	4
Girl	17	6	5	5
Boy	17	7	5	5
Girl	18	5	7	6
Average		5	5.25	4.35

Scale illustration: Vocal skills 1,2,3 = tone deaf, 4= primarily completing the whole song, 5= smooth tone and intonation, and pitch, 6= well tone with high purity and broad voice range. Audition and understanding to the song 1,2,3 = no emotion, 4= mastering basic beats, crescendo, fortissimo and piano, 5 = obviously emotional

expression, 6= accurately mastering style, characteristics, emotion of the song, 7= being full of affection and expression with good manner and unique understanding to the song. The list of songs includes *Little White Boat*, *A Creek under the Petty Bridge*, and *Edelweiss*. The research tool is subject to qualitative one.

### The validity of the Questionnaire

N=102

Total	Validity	Invalidity	Rate
102	86	26	0.84%

The number of interviewees amounted to 102, of which 86 were valid and valid rate was 0.84%.

### SAS

Employing SAS analysing tool, I processed my data. In the SAS, proc print data was equal to 86, by gender and by age, and variable names was input different values like their marks in audition, vocal skills, and song understanding, so average numerical values were got.

the research got the average scores about musical awareness of high school students in Changsha of China. The general score registered 4.8%, ranking the medium level. In terms of vocal skill, girls got 5.1% and boys saw 4.3%. The result of audition showed that girls and boys registered 5.2% and 4.8% respectively and understanding to the song for girls and boys accounted for 4.5% and 3.75% respectively. Girl's comprehensive score hit 4.93%, and boys only reached 4.28%. The researcher can get the following results.

a) Vocal music education in Changsha needs to be improved in comparison with that of European countries and America.

b) In terms of pedagogy, musical teachers should continually learn and explore advanced ones for improving students' understanding to vocal skills.

c) According to the statistics, girls performed better than boys, because girls were congenitally adept to express them, and girls were universally willing to turn the amateur hobby into the specialty, but not boys.

d) In audition performance, most of students can naturally and smoothly sing their songs with feelings and understandings, so the psychological factors indeed did not exert impact on them.

e) In China's Changsha where enjoys a well economic advantage, students in

high school still lack practice time for vocal music as a lesson. The country and family should, if condition permits, give more attention to the children's musical education. Most of students' practice time has been compromised by literacy lesson exercise.

f) The link of musical education in high school was polarization, in which professional students and amateur students went to the opposite ends.

g) The students with long musical learning period could insist in continued musical learning despite of bearing hard literacy exercise at the same period. Therefore, keeping a good musical practice is the key to musical awareness.

### Reference

- Biasutti, Michele, & Concina, Eleonora. (2018). The effective music teacher: The influence of personal, social, and cognitive dimensions on music teacher self-efficacy. *Musicae Scientiae*, 22(2), 264–279.
- Chen Yunli & Dan Xiufang.(2019). **Research on the Psychological Mechanism of Vocal Music Teaching and Singing**. pp2-5 .
- Comeau, Gilles, Huta, Veronika, Lu, Yuanyuan, & Swirp, Mikael. (2019). The Motivation for Learning Music (MLM) questionnaire: Assessing children's and adolescents' autonomous motivation for learning a musical instrument.
- J. Levinson. (2009). The Aesthetic Appreciation of Music. *The British Journal of Aesthetics*, 49(4), 415-425.
- M. Bremmer & L. Nijs. (2020). The role of the body in instrumental and vocal music pedagogy: a dynamica systems theory perspective on the music teacher's bodily engagement in teaching and learning. Publisher: **Frontiers in Education**.Volume 5 Article 79. Pp1-9.
- Parr, Sean M. (2019). Wagnerian Singing and the Limits of Vocal Pedagogy.(Opera review). *Current Musicology*,105, 56.
- P D. Sanders.( 2001). *Vocal Music Education at Ohio's First Teachers' Institute* Publisher: **Journal of Historical Research in Music Education** October 2001 XXIII:1 pp60-67 .
- R. Johanna.(2014). Self-efficacy in Music Education Vocal Instruction: A Collective Case Study of Four Undergraduate Vocal Music Education Majors.
- Y. Zhang. (2018). A Comparative study of vocal music education between China and the United States. Publisher: Clausius Scientific Press, Canada. **Educational Technology and Psychology** (2018) 2: 200-204 .

- Biasutti, Michele, & Concina, Eleonora. (2018). The effective music teacher: The influence of personal, social, and cognitive dimensions on music teacher self-efficacy. **Musicae Scientiae**, 22(2), 264–279. <https://doi.org/10.1177/1029864916685929>
- Chen Yunli & Dan Xiufang.(2019). *Research on the Psychological Mechanism of Vocal Music Teaching and Singing* pp2-5 .
- J. Levinson. (2009). The Aesthetic Appreciation of Music. **The British Journal of Aesthetics**, 49(4), 415-425.
- Parr, Sean M. (2019). Wagnerian Singing and the Limits of Vocal Pedagogy.(Opera review). **Current Musicology**,105, 56.
- P D. Sanders.( 2001). Vocal Music Education at Ohio’s First Teachers’ Institute. **Journal of Historical Research in Music Education** October 2001 XXIII:1 pp60-67

# THE APPLICATION OF BUDDHIST PRINCIPLES IN DEALING WITH THE PANDEMIC SITUATION OF COVID-19

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## Abstract

The objectives of this research are to study Buddhist Principles practiced in the epidemic situation of COVID-19, and to explain the application of Buddhist principles of volunteers facing COVID-19. This research is a qualitative study based on documents and related research and from direct interviews with the 15 key informants, including medical personnel, foundation staffs, crematorium monks and temple undertakers. Data were analyzed by thematic analysis method. The research found that the most appropriate principles for the COVID-19 epidemic were Mindfulness, Precaution, the Four Noble Truths, Impermanent, Four Principles Virtuous Existence and Wholesomeness. All of these are principles that bring happiness to practitioners. However, most volunteers tend to apply the principles of mindfulness and apparatus to face the COVID-19 disease both directly and indirectly. This is because the principle of mindfulness helps the practitioner not to be reckless and not fall into negligence. If they fail, they can become sick and die. Therefore, applying Buddhist principles in dealing with the COVID-19 pandemic will help to survive its infection and have happiness in life.

**Keywords:** Application of Buddhist Principles, Epidemic Situation, COVID-19

## Introduction

The application of Buddhist dharma in the management process in the situation of the COVID-19 epidemic is challenging and the only way to survive in this situation. However, since there are so many principles of Dharma in Buddhism, it is difficult for those who are beginning to become seriously interested in Buddhism.

When choosing to practice the Dharma is not appropriate, it may not be effective. Consequently, it is essential to create happiness in the present.

From the evidence presented in the Buddhist scriptures, it is quite evident that the Dharma of Gotama Buddha can solve the problems of the life of the sufferers, regardless of the level of suffering. It was able to quell suffering. In addition, it is able to alleviate all suffering from this cycle. It will not only help the afflicted one to be happy, the unsuffering will also be happy.

There are many levels of suffering in Buddhism. Even birth, aging, pain, and death are all suffering. Suffering can also be divided into two categories: physical suffering caused by disease, especially disease that is prevalent today known as "Covid-19" and mental suffering caused by internal defilements are the driving factors such as desire, irritation, and infatuation. However, in this research, the physical suffering caused by Covid-19. It first emerged in Wuhan, China and then spread all over the world. Moreover, COVID-19 can mutate over time.

Nevertheless, the global public health administration to tackle the COVID-19 mutation is difficult, causing the mortality rate to continue to increase. Although vaccines are currently being produced to prevent serious illnesses, they have not been able to stop the spread. Therefore, making a choice to live happily with the disease is the most suitable choice and to be happy depends on the principles of Dharma in life.

However, research related to the application of Dharma in the COVID-19 situation is not as widespread as it should be. If practice of the Dharma principles is suitable for this situation, it will help to get clear guidelines for living with the disease with understanding and happiness. Therefore, it is interested in studying the application of Buddhist principles in dealing with the epidemic situation of COVID-19.

### **Research Objectives**

1. To study Buddhist principles practiced in dealing with the epidemic situation of COVID-19.
2. To explain the application of Buddhist principles of volunteers facing COVID-19.

### **Literature Reviews**

In Buddhism, there are many dharma principles that religious people have applied in the situation of the Covid-19 epidemic. The Buddhist Dharma principles

used for this research are retrieved from literature reviews and relevant research during the severe COVID-19 epidemic.

From the previous research, it was found that there are quite limited researches and there are very few studies which can be found only a few pieces. The outstanding research results are published in Thai only by Charnnarong. It was published in the Journal of Humanities and Social Sciences of Nakhon Phanom University and was released to the public in 2021. The results of his research indicate that the Dharma principles that have been implemented in the situation of the Covid-19 epidemic are: 'Mindfulness, Precaution, the Four Noble Truths, Impermanent, Four Principles Virtuous Existence and Wholesomeness' (Charnnarong, 2021).

Chanthuek, et al., (2021) noted that Buddhist principles in COVID-19 pandemic was the self-development and the adaptation of working in accordance with level of severity of disease.

Maddavo, (2021) stated that the eightfold path such as Sammatithi, Sammasangkappa, Sammavaca, Sammakammanta, Sammaajiva, Sammavayama, Sammasati, and Sammasamadhi was appropriate Buddhist principles. The Noble Path was also the practice of happiness in dealing with the era of the Covid-19 epidemic.

In short, there are many principles in Buddhism to follow the needs of the individual. Dharmas suitable for dealing with COVID-19 include Mindfulness, Precaution, the Four Noble Truths, Impermanent, Four Principles Virtuous Existence and Wholesomeness. A person who implements it will find happiness in life. Therefore, applying the principles of living properly in the situation of the COVID-19 epidemic will help to survive.

### **Research Methodology**

The research was conducted by reviewing documentaries such as Buddhist Scriptures or Buddhist textbooks and Buddhist researches related to this research topic and conceptual framework as well as by investigating the 15 key informants, namely medical personnel, foundation staffs, crematorium monks and temple undertakers. This research was a qualitative methodology by studying Buddhist scriptures and other related documents, and then conclude specific issues in accordance with research conceptual framework. For in-depth interview, 15 key informants would be interviewed by non-structured interview instrument as follows:

1. Survey the 15 key informants that had experience about dealing with Covid-19

disease, including medical personnel, foundation staffs, crematorium monks and temple undertakers, and they would agree to provide information. 2. Appointment and interview date, by contacting them to clarify the research objectives and schedule the interview. 3. Interview them in specific issues related to other research objectives. The information gained from them would be confidential and anonymous. The permission was asked for taking notes and asked more questions until completion. The data analysis was performed on thematic analysis.

### Research Results

From the research results, it was found that the basic principles practiced in the situation of the COVID-19 epidemic consisted of Mindfulness, Precaution, the Four Noble Truths, Impermanent, Four Principles Virtuous Existence and Wholesomeness. When all these principles were put into practice, it would help to bring peace of mind. It would also help practitioners realize their duties intently to ease the suffering of others. Therefore, all these principles are practical guidelines in the epidemic situation of COVID-19.

Fifteen key informants, most of them were aged 54, and experienced encounters with COVID-19 since the time the COVID-19 pandemic hit Thailand in 2019. The Buddhist principles that they often follow are as follows:

Conceptual Framework	Practices of 15 Key informants
Mindfulness	<p>...When going on duty to take care of a sick person with COVID-19, one must be cautious and conscious because the careers of medical personnel are riskier than the careers of ordinary people who choose not to meet with Covid-19 patients. But the medical profession can't choose not to treat people who are sick with COVID-19, so it requires a higher level of mindfulness than a non-medical person.... (2<sup>nd</sup> interviewee)</p> <p>... When I received the news that someone had contracted COVID-19, I had to think carefully about how to let myself go because when I was infected, people around me were at risk of getting the infection from me... (5<sup>th</sup> interviewee)</p> <p>...It's very dangerous to be burdened as an undertaker to manage a dead body infected with COVID-19. Consciousness is the most important thing that can't go wrong... (6<sup>th</sup> interviewee)</p> <p>...Even if you are invited to pray for COVID-19 at the temple, you</p>

	<p>must always remember that the body in front of you is a body infected with COVID-19 . It is absolutely impossible to be unconscious...(10<sup>th</sup> interviewee)</p>
<p>The Four Noble Truth</p>	<p>The Four Noble Truths are the principles of the Noble Ones for eliminating suffering, while doctors apply the Four Noble Truths as the principle of diagnosing the symptoms of COVID-19 to treat and heal the sick. (7<sup>th</sup> interviewee)</p> <p>The Four Noble Truths allow us to understand suffering, the cause of suffering, the cessation of suffering, and the way to the cessation of suffering. Foundation staff must use the Four Noble Truths as a guideline to end suffering for villagers who do not have access to the public health system both while sick and dead. (8<sup>th</sup> interviewee)</p> <p>The Four Noble Truths are the principle of cessation of suffering during the COVID-19 outbreak. Very few relatives of those who have died from COVID-19 will meet face to face before their bodies are cremated. Therefore, a good undertaker would have to curb the suffering of his relatives with the best possible cremation. (14<sup>th</sup> interviewee)</p> <p>Suffering in the Four Noble Truths is not the same as suffering in the Trinity. Consequently, suffering in the Four Noble Truths is something that one should know and find the cause of that suffering in order to determine the way to end suffering. (15<sup>th</sup> interviewee)</p>
<p>Impermanent</p>	<p>...How painful it is to accept the truth as it hurts to see one after another COVID-19 patient die without being able to help more, but think of it as an impermanent condition and help other patients who keep alive. (4<sup>th</sup> interviewee)...</p> <p>...Sometimes operations have to accept uncertainty because foundation staff can also get sick and die. This uncertainty also helps us understand and accept what happened to both our family and friends. (9<sup>th</sup> interviewee) ...</p> <p>... As a monk, I have to think that everything is impermanent, suffering and intangible. Everyone is born with different happiness and suffering. He/she eventually has to die. Buddhist monks have to perform the duty of chanting the spirits... (12<sup>th</sup> interviewee) ....</p> <p>Undertaker is a career that only shows the uncertainty of life. The destiny of the dead is not beyond the hands of the</p>

	undertaker.... (13 <sup>th</sup> interviewee) ...
Precaution	<p>... Heedlessness is the path to death. Therefore, medical personnel must be cautious in treating patients with COVID-19 carefully. Still, some health care workers will still be infected with COVID-19 despite taking full precautions... (4<sup>th</sup> interviewee)</p> <p>...Before going to help patients with COVID-19, Foundation staff must wear PPE rigorously to prevent infection and possible transmission if we are careless... (8<sup>th</sup> interviewee)</p> <p>... The perfect monasticity is the presence of carelessness. Therefore, the monks need to hasten to practice in order to get out of suffering... (11<sup>th</sup> interviewee)</p> <p>...The undertaker is responsible for organizing the cremation of the bodies infected with COVID-19 and there is a high risk of infection if I am careless. Out of love for his family and relatives, the undertaker is more careful. If I infect, others close to me will also be infected. ... (13<sup>th</sup> interviewee)</p>
Four Principles Virtuous Existence	<p>...Medical personnel set up the Fourth Brahma Vihara to treat COVID-19 patients. This a reason why it is a principle that allows patients to receive compassionate ethically.... (7<sup>th</sup> interviewee)</p> <p>...Foundation personnel for transferring and transporting COVID-19 patients or those who have died from COVID-19 have to be mindful and compassionate and sometimes have to let go when bad things happen and take action continuously.. . ( 8<sup>th</sup> interviewee)</p> <p>... Monks must have compassion for all beings without discrimination of any gender or caste... (11<sup>th</sup> interviewee)</p> <p>...The Undertaker had to use the Four Brahma Viharn a lot because he had to burn the entire corpse of COVID-19 within a limited time.... (13<sup>th</sup> interviewee)</p>
Wholesomeness	...All key contributors argue that the use of intelligence in dealing with COVID-19 is essential to safe and effective work.

## Discussions

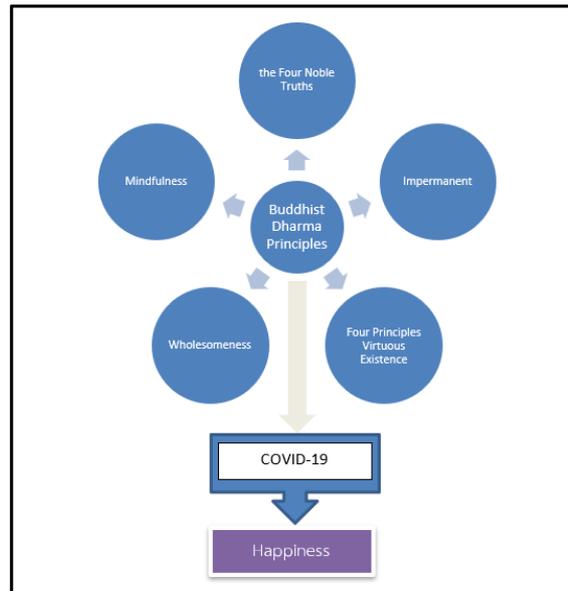
In the Buddhist scriptures, there are many principles for Buddhists to practice according to their own needs. However, here are just some of the principles that are most frequently used in the COVID-19 pandemic, namely Mindfulness, Precaution, the Four Noble Truths, Impermanent, Four Principles Virtuous Existence and Wholesomeness. This was correspondent with the study of Charnnarong, (2021).

Moreover, it was found that most of the key informants applied these Buddhist principles to suit the situation of the COVID-19 epidemic. This was consistent with the study of Chanthuek, et al., (2021). Their study results were found that in order to survive, individuals must learn to develop themselves and adapt themselves to the epidemic situation of COVID-19 in a timely manner. Sometimes, they must to use online method to early ask the patients some information regarding their timeline to prevent the spread to other people, according to Pinem, et al., (2020). And This is also consistent with the study of Park, and Kim, 2021. However, it is important to practice Dharma by chanting, sutra chanting, sutra copying, Buddhist mediation and fasting pledge, to relieve their anxieties, to feel relaxed and secure to pray for an end to the pandemic and to gain merits for their cultivation. This was correspondent with the study of Tseng, (2020).

From the research results, it was also found that key informants were aware of choosing certain dharma topics in accordance with the COVID-19 epidemic situation. They hardly even knew what that principle was called. When they practice the Dharma that they have chosen to practice it, they unconsciously find happiness, which can be explained in the following figure 1.

### **Suggestions**

From the research results, it was found that there are many principles in Buddhism to follow according to the habits of each person. Therefore, administrators or supervisors should encourage professional personnel to practice dharma in accordance with the dharma in order to support the practice of dharma in accordance with their own needs freely. Practicing the Dharma also helps to find happiness in the present. If you die, you will find happiness in the next world.



**Figure 1.** Buddhist Principles to dealing with the COVID-19 Epidemic Situation

### References

- Chanthuek, P.S.Y., Piyasakulkiat, O., Panyasudhammanites, P., Thongjunra, P.Y., Kongduangdee, L. (2021). New Normal Quality of Life according to Dhamma Principle in Covid-19 Pandemic Crisis in Khwao Sinrin District Municipality, Surin Province. **Turkish Journal of Computer and Mathematics Education**. 12 (8), 2499-2504.
- Charnnarong, C. (2021). Health Care Guidelines During Covid-19 Crisis by Applying Buddhist Principles. **Journal of Humanities and Social Sciences Nakhon Phanom University**. 11 (2), 317-327.
- Maddavo, P.S. (2021). Application of Buddhist Principles as a guideline for dealing with the Covid-19 pandemic. **Journal of MCU Social Science Review**. 10 (1), 323-332.
- Park, C. and Kim K. (2021). Covid-19 and Korean Buddhism: Assessing the Impact of South Korea's Coronavirus Epidemic on the Future of Its Buddhist Community. **Religions** 12, 147.
- Pinem, R.J., Luqman, Y., Lituhaaya D., Marlina, N., Paramasatya S. (2020). The Challenges in the Implementation of University's Tri Dharma during the Covid-19 Pandemic. **Psychology and Education**. 57 (8), 370-374.
- Tseng, A.A. (2020). Mahayana Buddhists' Responses to COVID-19 Pandemic. In **Exploring the Life and Teaching of Mahayana Buddhist in Asia**. 1-9.

# THE COMPOSITIONAL IDEAS OF BÉLA BARTÓK'S SYMMETRY IN PIANO MUSIC FOR 20TH-CENTURY CLASSICAL COMPOSERS' COMPOSITIONS

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## Abstract

This study intends to reveal Bartók's compositional strategy based on symmetrical conceptions and formations in his piano music and to show the musical relationship between Bartók's symmetry and 20th-century classical music composers' piano compositions. Bartók's symmetry in music is one of the highly unique characteristic styles of him to create innovative musical craft that has an overt influence on later modern composers. This study principally adopts two methods which are stylistic analysis and theoretical analysis in order to shed some light on Bartók's and other composers' compositional language in piano music. As a result, Bartók's symmetrical conceptions and formations are the three intervallic cells (X-cell, Y-cell, Z-cell), acoustic (overtone) scale, Hungarian pentatonic scale, and the axial system; these techniques can mainly be found in Bartók's piano music from 1908 to 1939 based on idea of new tonal experimentation that Bartók blended authentic traditional folk music with the common-practice era and musical sound of 20th-century classical music. In doing so, the musical ideas of Bartók's symmetry are also found in a number of American and Hungarian modern classical music composers' fancy piano compositions in the second half of the 20th century until the present.

**Keywords:** Béla Bartók, piano music, compositional techniques, compositional influences, musical styles

## Introduction and Literature Reviews

Béla Bartók (1881-1945) who is widely considered one of the most prominent Hungarian composers in twentieth-century Western-art music was extremely interested in traditional peasant music in eastern European countries, as well as

Turkish folk music and North African Arab music. Regarding Bartók's compositional techniques and styles, Bartók's early music mainly absorbed musical ideas of Franz Liszt (1811-1886), Johannes Brahms (1833-1897), and Richard Strauss (1864-1949) while Bartók studied at the Budapest Academy of Music (Yeomans, 1988); at the same time, Bartók's music was influenced by Gypsy-style passion along with national Hungarian dance, the *verbunkos* (Yeomans, 1988). Next, in the middle period (1905-1910), Bartók undertook many fieldworks as an ethnomusicologist with his compatriot and fellow composer Zoltán Kodály (1882-1967). Both Hungarian composers traveled to gather a large number of authentic local folk-music tunes in Hungary, Romania, Slovakia, Bulgaria, Ruthenia, and Serbia (Gillies, 2001). Bartók would try to capture the musical styles and characters of traditional peasant music and blend them into his own compositional idiom. Additionally, in 1907 Bartók's musical language was inspired by French impressionist music from Claude Debussy (1862-1918) (Stevens, 2002), inasmuch as at that time Kodály introduced Bartók to the musical style of Claude Debussy (Watkins, 1995). Afterwards, between the 1910s and 1920s Bartók's compositional approaches obtained some influences of the Russian composer Igor Stravinsky's and the Austrian composer Arnold Schoenberg's musical idioms (Burkholder, Grout & Palisca, 2014). From 1926 through 1945, Bartók's late music emphasized on the critical synthesis of eastern European traditional peasant tunes and North African Arab music such as thematic melodies, rhythmic segment, scalar architecture, along with Western European art-music compositions which were classical forms and contrapuntal compositional techniques (Suchoff, 2001). As a result, Bartók combined the genuine traditional folkloristic materials with the common-practice period and the concept ideas of 20th-century classical music to create his own modernist craft. It is noteworthy that Bartók's lifelong musical works composed for progressive piano pieces much more than other musical instruments and much of his piano music also is the well-known and distinguished for Western musical heritage as well as non-Western and folk music. Bartók was extremely fond of using musical technique of symmetry in his individual style (Burkholder, Grout & Palisca, 2014). In other words, he always employs technical symmetry in his musical passages in terms of melodic motifs, harmonization, musical structure, scales, and modes (Austin, 1966).

Pertaining to Bartókian legacy in music, there are an enormous number of not only modern and contemporary classical music composers, but also jazz composers

who were highly influenced by Bartók's compositional techniques, styles, and approaches such as Benjamin Britten (1913-1976), Aaron Copland (1900-1990), Olivier Messiaen (1908-1992), Witold Lutoslawski (1913-1994), Alberto Ginastera (1916-1983), George Crumb (1926-), and György Ligeti (1923-2006) (Antokoletz & Susanni, 2011), as well as Zoltán Kodály (1882-1967), and Erno Dohnanyi (1877-1960) (Gillies, 2001), along with György Kurtág (1926-), Chick Corea (1941-), Narong Prangcharoen (1973-), Denny Euprasert (1969-), and Wiboon Trakulhun (1966-). In doing so, it is clear that Bartókian vocabulary had an effect on several musical aspects of the twentieth century such as modern music, jazz music, non-Western art music, primitivism, neo-classicism, nationalism, expressionism, and impressionism.

### Research Objectives

-To reveal Bartók's compositional strategy based on symmetrical conceptions and formations in his piano music

-To show the musical relationship between Bartók's symmetry and 20th-century classical music composers' piano composition

### The Scope of the Research and Methods

This research article principally emphasizes on analyzing Bartók's middle and late musical oeuvres namely *Fourteen Bagatelles*, Op. 6, Sz. 38 (1908), *Seven Sketches*, Op. 9b, Sz. 44 (1908-1910), *Suite for Piano*, Op. 14, Sz. 62 (1916), *Piano Sonata*, Sz. 80 (1926), *Out of Doors*, Sz. 81 (1926), and *Mikrokosmos*, Sz. 107 (1926-1939) in order to evidently see Bartók's stylistic conceptions of symmetry in fancy piano compositions. Within these sets of piano compositions, this study selected some of progressive piano pieces that demonstrate the obvious symmetrical ideas in Bartók's music which can also be found in other modern composers' piano compositions in 20th-century classical music. Therefore, this study concentrates on adopting two methods which are stylistic analysis and theoretical analysis so as to throw some light on Bartók's and 20th-century classical music composers' piano compositional techniques and approaches.

## Research Findings of Béla Bartók's Symmetry in Piano Music

### 1) Axial system in music

In terms of the theoretical and analytical studies of the music, in *Bagatelle* No.2, the beginning dyad eighth note grouping shapes the major second, Ab-Bb, that is symmetric around an implicit axis pitch, A. Interestingly, in measures 3-4 (see Figure 1), this serves as a center for symmetric extension in the left-hand passage; in doing so, the musical language in the left hand implies main thematic melodies which gradually expand the interval symmetrically until the tritone away from the axial pitch A; it reaches Eb in measure 4. At the same time, its musical idiom in the right hand only adopts two pitch-class sets together, Ab-Bb based on repeated notes. On the other side of musical conception about axial symmetry in Bartók's *Bagatelle* No. 2 in measures 3-4, its musical process can also lead to a pitch-class set of the chromatic scale in two main lines of melody in the left hand, representing the top voice (B, C, Db, D, Eb) to go up as well as another voice (G, Gb, F, Fb) to go down as expansive shapes of chromatic figure (see Figures 1 and 2) that it is one of vital compositional approaches in order to create symmetry of the axial system in music.

There is, however, use of compositional technique of axial system in music again in measures 19-20 (see Figure 3) which are somewhat akin to concept idea of axial system at the beginning of the music (see Figure 1) but changes tonal centrality and register to be based on the axial pitch Eb.



Figure 1. Axial symmetry of *Bagatelle* No.2, Op. 6, Sz. 38 (1908), measures 3-4



Figure 2. Axial symmetry of *Bagatelle* No. 2, Op. 6, Sz. 38 (1908), the chromatic scale



Figure 3. Axial symmetry of *Bagatelle* No.2, Op. 6, Sz. 38 (1908), measures 19-20

## 2) Intervallic cells

Intervallic cells which consist of Z-cell (0167), Y-cell (0246), and X-cell (0123) can undoubtedly be found in Bartók's piano compositions. For instance, the 3rd movement of Suite for Piano Op. 14 in measures 11, 12, 15, 16-20, 36-37, 40-41, 49, 91-92, 95-96, 104, 117-118, 120, 122, 124, 126, and 127-130 (see Figure 4) focuses on using D Z-cell, D-Eb-G#-A. Notes D-Eb-G#-A are also found in thematic motive of Arab folk music that Bartók studied; Z-cell is one of compositional outputs in North African Arab music style. Remarkably, in 1913 Bartók conducted fieldwork in North Africa; he collected a sum of music of the nomadic Arab tribes of Biskra (Demény, 1971), inasmuch as Bartók was keenly interested in traditional folk-music tunes to go beyond the barriers of cultural nationalism.

In *Portrait of a Girl* (No. 1) from *Seven Sketches*, the thematic melody conveys idea of Y-cell, which is a whole-tone tetrachord, showing prime structure (0246); in other words, it is a subset of a whole-tone scale. It is D-E-F#-G# in the right hand in measures 27-31; similarly, the top voice of the left hand adopts concept idea of two Y-cells, which backwards are A-B-C#-D# (A Y-cell) and D-E-F#-G# (D Y-cell) in measures 27-31, including the middle line D-E-F#-G# in measures 27-29 and the bass line F#-G#-A#-B# in the same measures (see Figure 5).

Lastly, there are some musical aspects in *Non troppo lento* (No.4) from *Seven Sketches* which represents X-cell, chromatic tetrachord, showing prime set (0123) in measure 7, such as the soprano line: C-C#-D-Eb, alto line: A-A#-B-C, and bass line: D-D#-E-F to create tone-chromatic tetrachord (see Figure 6).

After all, intervallic segments which are Z-cell (0167), Y-cell (0246), and X-cell (0123) are greatly associated with the concept idea of symmetry. All these intervallic cells that Bartók used are symmetrical cells which enable him to interchange between these cells and symmetrical scales that are octatonic scale, whole-tone scale, and chromatic scale.

Figure 4. III. *Allegro molto* from Suite for Piano Op. 14, Sz. 62 (1916), measures 127-130

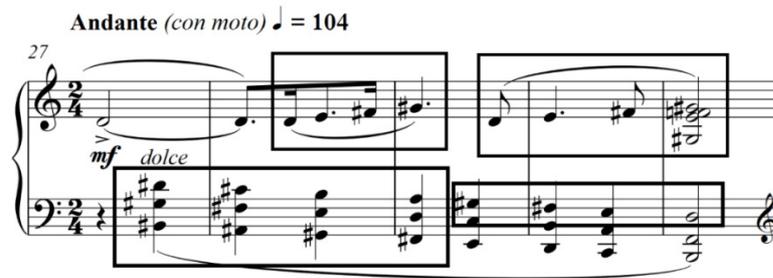


Figure 5. Portrait of a Girl (No. 1) from Seven Sketches, Op. 9b, Sz. 44 (1908-1910),  
measures 27-31

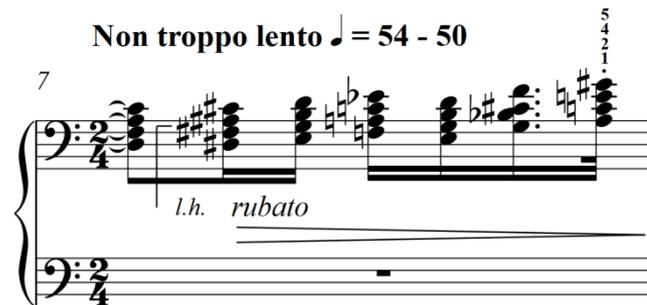


Figure 6. Non troppo lento (No. 4) from Seven Sketches, Op. 9b, Sz. 44 (1908-1910),  
measure 7

### 3) The acoustic (overtone) scale

By the theoretical and analytical studies of the music, *Bagatelle* No. 6 contains the complete acoustic (overtone) scale, C-D-E-F#-G-A-Bb, in measures 11-13 the left-hand segment (see Figure 7). The acoustic (overtone) scale can be so-called non-diatonic folk mode that Bartók found it while conducting fieldwork in eastern European countryside. Above all, this technique can change a pitch center by means of systematic rotation in music which still remains the same seven notes, such as C-D-E-F#-G-A-Bb (rotation 1), D-E-F#-G-A-Bb-C (rotation 2), E-F#-G-A-Bb-C (rotation 3), F#-G-A-Bb-C-D-E (rotation 4), G-A-Bb-C-D-E-F# (rotation 5), A-Bb-C-D-E-F#-G (rotation 6), and Bb-C-D-E-F#-G-A (rotation 7).

*With Drums and Pipes* of *Out of Doors* in measures 41-42 seems like the skeletal hexachord of the acoustic (overtone) scale based on G between the right hand and left hand (see Figure 8). Similarly, the acoustic (overtone) scale can also be seen in part A of *Line and Point* (No.64) from *Mikrokosmos* as well, indicating both hands simultaneously in measures 6, 12, 13, 14, 15, and 21 (see Figure 9); that is, the music seems to imply the pitch collection A-Bb-C-(D)-E-F#-G that the note D is the axial pitch in this passage. As a result, Bartók desired to employ this scale which mainly

focuses on horizontal direction rather than vertical line in music which can still see the pitch center (see Figure 9).



Figure 7. *Bagatelle* No. 6, Op. 6, Sz. 38 (1908), measures 11-13



Figure 8. *With Drums and Pipes* from *Out of Doors*, Sz. 81 (1926), measures 41-42



Figure 9. a) *In Line and Point* (No.64) in Volume II from *Mikrokosmos*, Sz. 107 (1926-1939), measures 14-15

#### 4) The symmetrical pentatonic scale

Concerning the second movement of the Piano Sonata, the melodic themes in measures 17-21 reveal the tetrachordal passage of anhemitonic pentatonic minor scale, namely E-G-A-D (see Figure 10). In doing so, this pitch collection is derived from the symmetrical old Hungarian pentatonic scale, A-C-D-E-G that “Bartók discovered during July 1907, during his fieldwork in remote Székely villages of then Hungarian Transylvania” (Suchoff, 2004, p.149). However, this technique is also found in Bartók’s late work, *Six Dances in Bulgarian Rhythm* (No. 151) from *Mikrokosmos* in the right-hand theme in measures 1-8 (see Figure 11) even though this piece emphasizes on using concept idea of Bulgarian folk rhythmic dance based on 3+2+3/8 meter.

**Sostenuto e pesante, ♩ = 84**

Figure 10. II. *Sostenuto e pesante* from the Piano Sonata, Sz. 80 (1926), measures 17-21

**♩ = 50**

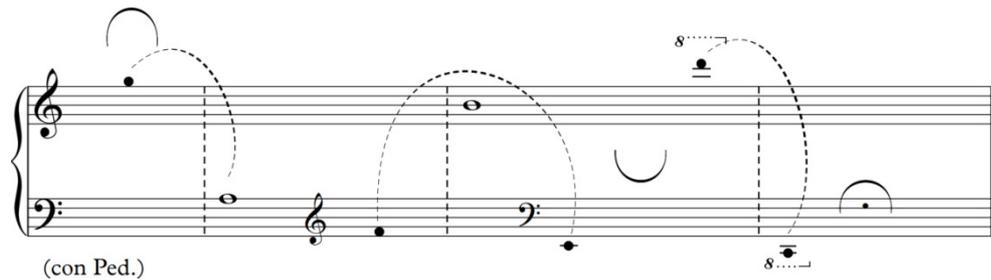
Figure 11. *Six Dances in Bulgarian Rhythm* (No. 151) in Volume VI from *Mikrokosmos*, Sz. 107 (1926-1939), measures 1-8

## Research Findings of Musical Influence of Bartók's Symmetry on 20th-century Classical Music Composers' Piano Compositions

### 1) Axial system in music

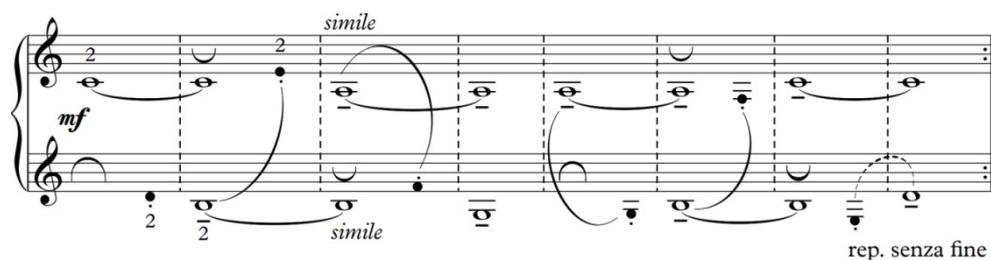
In this research, technique of Bartók's axial system can be found in Hungarian classical music composer's piano works. Regarding Hungarian composer György Kurtág (1926-) in *Játékok*, Volume I (1973), this work significantly focuses on using Bartók's axial system in music. For instance, *Virág az ember* (*Flowers We are, Frail Flowers*) (1b) expresses the note G which seems to be a center of this piece, i.e., D-E-F(G)-A-B-C (see Figure 12), showing symmetric balance of diatonic pitch in each connected step between the right hand and the left hand. In doing so, the beginning of the music contains the note G that moves one step to A. Afterwards, the music gradually expands centrifugally from the axial pitch G; the music shapes the implicit

lines G-A-B-C and G-F-E-D. Thus, the piece is symmetric around the implicit pitch G which looks like a center of this piece (see Figure 12).



**Figure 12.** Kurtág's *Virág az ember...* (1b), *Flowers We are, Frail Flowers...* (1b) from *Játékok*, Volume I (1973), measures 1-4

Similarly, Kurtág's *Tölcserjáték*, *Out and In* (1) from *Játékok*, Volume I, discloses concept idea of Bartók's axial symmetry in music. The compositional technique principally emphasizes on C which is the axial note in this piece. The opening of the piece contains the note C that gradually moves outward, which is G-A-B-(C)-D-E-F, indicating the symmetry around the note C (see Figure 13 ). It is interesting that the compositional strategy in this piece seems like the technique of symmetrical mirror image in both hands, inasmuch as the beginning and the end of the music employ notes C and D, and measures 2 and 7 have notes B and E; subsequently, measures 3 and 6 show notes A and F, and measures 4 and 5 contain notes A and G (see Figure 13).



**Figure 13.** Kurtág's *Tölcserjáték*, *Out and In* (1) from *Játékok*, Volume I (1973), measures 1-8

It is noteworthy that Kurtág's *Hommage à Bartók* from *Játékok*, Volume I, infuses diatonic conception of the axis of symmetry based on pitch center of C without chromatic note (see Figure 14). The music reveals C at the opening of the piece, and subsequently expands around the implicit axial pitch C. Pairs of expansion from C are such as B-D, A-E, and G-F in the first two measures (see Figure 14). At the

end of the piece, the music expands further from the axial pitch C with a scale in contrary motion over the span of one octave and a half from the axial pitch.

**Pesante con moto**

Figure 14. Kurtág's *Hommage à Bartók* from *Játékok*, Volume I (1973), measures 1-9

## 2) Intervallic cells

This technique can be found in American composer Crumb in piano works. For example, regarding *Night-Spell I* (Sagittarius) of Crumb's *Makrokosmos*, Volume I (1972), although this piece does not have meter and bar lines, its musical language features the interaction of different Z-cells (0167), such as A Z-cell (A-Bb-D#-E), B Z-cell (B-C-F-F#), Gb Z-cell (Gb-G-C-Db), and G# Z-cell (G#-A-D-D#) (see Figure 15).

Figure 15. Crumb's *Makrokosmos*, 6. *Night-Spell I* (Sagittarius), Volume I (1972)

Next, *The Mystic Chord* (Sagittarius) of Crumb's *Makrokosmos*, Volume II (1973), adopts intervallic cell, Z-cell (0167), showing Bb Z-cell (Bb-B-E-F) as well as G# Z-cell (G#-A-D-Eb) in measure 10 (see Figure 16). It is highly interesting that this piece absorbs pitch-class sets which are trichordal set of octatonic collections; it can basically be divided into three octatonic collections namely OCT (0,1), OCT (1,2), and OCT (2,3). To illustrate, in measure 11 (see Figure 17), the music emphasizes the trichordal set, G#-C#-D, which is derived from OCT (1,2), C#-D-E-F-G-G#-A#-B, along

with Eb-G#-A, which is derived from OCT (2,3), D-Eb-F-Gb-Ab-A-B-C; similarly, there is use of trichordal set, E#-A#-B, which is derived from OCT (1,2), as well as Db-F#-G, which is derived from OCT (0,1), C-C#-D#-E-F#-G-A-Bb in measure 11. As a result, those musical styles focus attention on pitch-class sets of octatonicism based on OCT (0,1), OCT (1,2), and OCT (2,3). The fact is that the octatonic trichord of G#-C#-D, Eb-G#-A, E#-A#-B, and Db-F#-G is greatly associated with Bartók's intervallic cell, Z-cell (0167), inasmuch as its musical language can be considered to be prime form, 167 without 0. After all, this compositional technique also leads to parallel tritones, such as G#-D, Eb-A, E#-B, and Db-G (see Figure 17) in order to shape non-traditional language in music that Bartók really loved to blend it into his individual musical style as well.

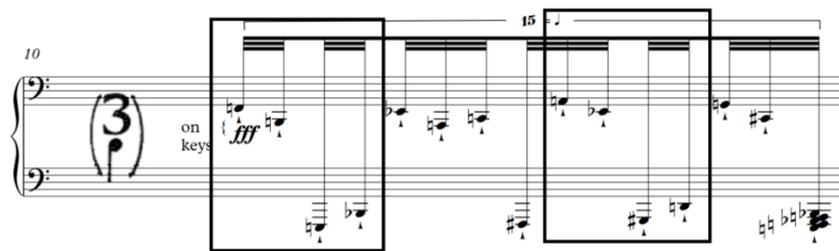


Figure 16. Crumb's *Makrokosmos, 2. The Mystic Chord (Sagittarius)*, Volume II (1973),  
 measure 10

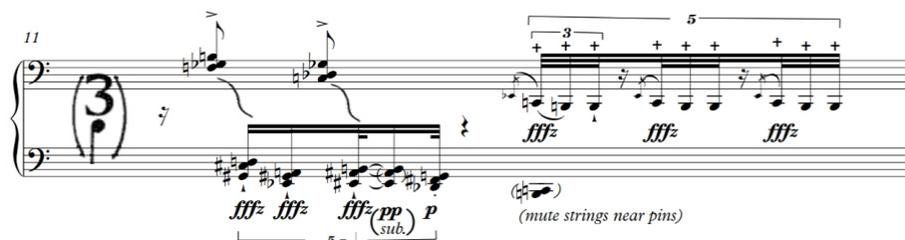


Figure 17. Crumb's *Makrokosmos, 2. The Mystic Chord (Sagittarius)*, Volume II (1973),  
 measure 11

### 3) The acoustic (overtone) scale

We can see concept idea of this technique in Hungarian composer Ligeti in music. For instance, the 4<sup>th</sup> movement (*Tempo di Valse*) of Ligeti's *Musica ricercata* (1951-1953) in measures 6-13 (see Figure 18) employs a tetrachordal set of the acoustic (overtone) scale, F#-G-A-Bb, in both hands. That is, it seems to be symmetrical around an implicit axial pitch, Ab. Remarkably, this music indicates odd key signature; the technique is also found in idea of Bartók's *Mikrokosmos* as well.

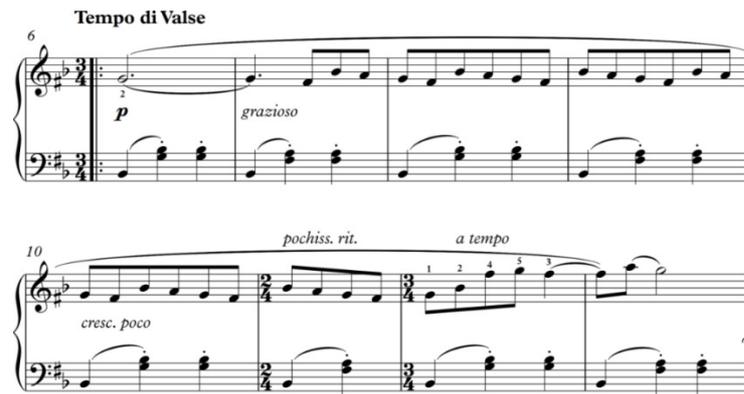


Figure 18. Ligeti's *Musica ricercata* (1951-1953), the 4<sup>th</sup> movement *Tempo di Valse*, measures 6-13

#### 4) The symmetrical pentatonic scale

This technique can be found in American composer Crumb's piano composition. For instance, in terms of *Morning Music (Genesis II)* of Crumb's *Makrokosmos*, Volume II (1973), although basically this work does not have time signature and bar lines, there are some musical passages that demonstrate the anhemitonic pentatonic minor scale, namely A-C-D-E-G (see Figure 19). That is, the music seems to be symmetrical around an implicit axial pitch, D.



Figure 19. Crumb's *Makrokosmos*, 1. *Morning Music (Genesis II)*, Volume II (1973)

#### Discussions

Undoubtedly, while Bartók invented technique of symmetry in his middle and late periods, at that time he importantly focused on using new tonality which combined local folk-music tunes with the common-practice era and musical sound of 20th-century classical music to lead to a number of symmetrical ideas and formations that are quite different from other modern composers during Bartók's period such as Stravinsky, Hindemith, Prokofiev, Shostakovich, Schoenberg, Scriabin, and many others. Bartók's symmetrical elements convey harmonization, rhythm, melody along with musical structure to create innovative musical craft, showing both horizontal and vertical axes in music; in doing so, we have never seen the

compositional technique like Bartók's symmetry in the early twentieth century Western-art music and before. The fact is that a vast number of modern composers during Bartók's period would like to absorb musical ideas of asymmetry rather than symmetry in music, particularly in Stravinsky's music that has always been compared to Bartók. Although Bartók's music employs asymmetrical meters and rhythms, but he was extremely fond of using symmetrical idea and construction in not only piano pieces, but also string quartets and orchestral works. Bartók is considered one of the greatest prodigies in the Western music history as composer, concert pianist, and music educator including ethnomusicologist as one of the founders of the field of ethnomusicology that emphasizes on systematic thinking and organization like the scientist; in other words, Bartók would try to be appropriately scientific, logical, and systematic in works during his middle and late periods. It is possible that these concept ideas have a strong impact on his piano compositions to invent symmetry in music at that time. Yet, this leads to the subsequent question: what are the differences between Bartók's symmetrical scale, the acoustic (overtone) scale, and Scriabin's mystic chord during the same period? It is clear that there are many reasons which are different in each other; firstly, this scale mainly focuses on horizontal direction rather than vertical like musical sound of Scriabin's mystic chord. Secondly, the acoustic (overtone) approach in music seems to be symmetrical scale to create the axial note. Moreover, this scale can lead to various intervals such as major second, minor third, and major sixth while playing the passage in both hands together (see Figure 9); it is somewhat different from Scriabin's seven-pitch mystic chord which is mostly based on stacked fourths even if its music expresses the same notes.

And eventually, Bartók's symmetry in music is found in 20th-century classical music composers' piano compositions in the Eastern world, Americas, and Europe even though there are some composers' compositions that went beyond Bartók's compositional outputs such as having no time signature and bar lines, as well as using limited notes in a pitch-class set like minimalism and microtonality in music. It is noteworthy that compositional strategy of Bartók's symmetry had an effect on aspect of jazz music apart from classical music; that is American jazz composers Corea and John Coltrane (1926-1967) who obtained Bartók's axial system which is one of the highly unique characteristic features of Bartók's symmetry in music. Besides, Bartók's symmetry is lead to various musical aspects of 20th-century

rhythmic and harmonic idioms such techniques as the pitch-class sets of octatonic scale and whole-tone scale along with parallel quartal chords, fully-chromaticised scale, bimodality, ostinato figuration, tone clusters, artificial scales or synthetic scales. Although we can see some ideas of symmetrical forms, patterns, and phrasings in music from 17th- and 18th-centuries classical composers such as J. S. Bach, Mozart, and Beethoven, including early music composer Guillaume de Machaut's symmetry in music, but it is very different from Bartók's compositions based on musical elements of 20th-century music along with non-traditional functional harmony. It is possible that Bartók gained some musical ideas about symmetry from a number of composers in the early music and common-practice era in order to develop and blend it into his personal musical style based on 20th-century music, because Bartók seems to be musicologist that he studied and taught a body of knowledge of Western European art music from the sixteenth century to the twentieth century while staying at the Budapest Academy of Music. After all, Bartók's symmetry in music is one of his musical approaches which enable him to lead to freedom from conventional rules of both the major and minor keys in tonality of the common-practice era so as to invent innovative and subtle compositional strategy which is found in the second half of the 20th century until the present. There are, however, some technical symmetries in Bartók's music which is closely associated with authentic traditional folk music that he researched as well.

## Conclusion

This study enables us to see compositional techniques of Bartók's axial system, acoustic (overtone) scale, Hungarian pentatonic scale, and intervallic cells based on symmetrical ideas and formations in his middle and late piano works such as *Fourteen Bagatelles*, Op. 6, Sz. 38 (1908), *Seven Sketches*, Op. 9b, Sz. 44 (1908-1910), *Suite for Piano*, Op. 14, Sz. 62 (1916), *Piano Sonata*, Sz. 80 (1926), *Out of Doors*, Sz. 81 (1926), and *Mikrokosmos*, Sz. 107 (1926-1939). As a result, we can see that the musical relationship between Bartók's symmetry and North American composer shows a fully-chromaticised scale based on symmetry of the axial system as well as intervallic cell, Z-cell (0167), in music which can lead to style of parallel tritones. Additionally, Crumb's piano music reveals anhemitonic Hungarian pentatonic minor collection based on the symmetrical formation of which Bartók used in his *Piano Sonata* and *Mikrokosmos* as well. Regarding Hungarian composers Kurtág and Ligeti,

their music implies idiomatic conceptions of Bartók's symmetry in music such techniques as the axial system and symmetrical mirror image in both hands which are used in Kurtág's *Játékok*, Volume I; Ligeti's *Musica ricercata* discloses the concept of Bartók's acoustic (overtone) scale. In doing so, the symmetry as compositional craft in Bartók's middle and late periods basically is derived from stylistic conceptualization of Western European art music and non-Western and folk music to lead to innovative technique of symmetry based on musical sound of the 20th century, remaining tonal idiom in music, which had an overt influence on many modern composers throughout the world.

### References

- Antokoletz, E., & Susanni, P. (2011). *Béla Bartók: A research and information guide* (3<sup>rd</sup> ed.). London, England: Taylor & Francis.
- Austin, W. W. (1966). *Music in the 20<sup>th</sup> century*. New York, USA: W.W. North & Company.
- Burkholder, G., & Palisca, C. (2014). *A history of Western music* (9th ed.). New York, USA: W.W. North & Company.
- Demény, J. (1971). *Béla Bartók's letters*. New York, USA: St. Martin's Press.
- Gillies, M. (2001). Béla Bartók. In *The new grove dictionary of music and musicians* (Vol. 2, pp. 787-818). New York, USA: Oxford University Press.
- Stevens, H. (2002). *The life and music of Béla Bartók* (3rd ed.). New York, USA: Oxford University Press.
- Suchoff, B. (2001). *Béla Bartók: Life and work*. London, England: The Scarecrow Press.
- Suchoff, B. (2004). *Béla Bartók: A celebration*. Lanham, USA: The Scarecrow Press.
- Trakulhun, W. (2016). *Ether-Cosmos: Twenty pieces for piano*. Bangkok: Thana Press.
- Watkins, G. (1995). *Soundings: Music in the twentieth century*. New York, USA: Schirmer.
- Yeomans, D. (1988). *Bartók for piano*. Bloomington, USA: Indiana University Press.

## THE CONCEPT OF DIGITAL ERA IN HIGHER EDUCATION MUSIC CURRICULUM

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### Abstract

The educational system has changed due to technological and social development. The use of technology plays an important role in everyday life, including in education at all levels. Music education in higher education needs transformation to develop a curriculum suitable for digital era education. This research aimed to analyze the concept of the digital era in the higher education music curriculum by using the documentary analysis method, which focuses on seeking evidence of digital concepts in the higher education music curriculum. It also attempted to provide recommendations for the development of music education in the digital era. The samples in this research were 15 music curricula (revised between 2017 to 2021) from every region in Thailand (i.e., North, South, Central, West, East, Northeast, and Bangkok).

Research findings showed the appearance of digital concepts mainly in the curriculum structure and course description. It was evident that the digital concept was applied in the general education course set and the music course set (both in the core course and elective course). However, the proportion of digital concepts from the samples was deficient. Accordingly, adding more digital concepts in a curriculum to capture the digital perspective is highly recommended. This paper is structured in six parts: (1) introduction and background, (2) research objectives, (3) literature review, (4) research methodology, (5) research findings, and (6) conclusions, discussion, and recommendations.

**Keywords:** digital concept, music curriculum, higher education, music education

## Introduction and Background

Currently, the educational system has changed due to technological and social development. Furthermore, it is evident that the use of technology plays a role in everyday life, including in education at all levels (Means, 2010; Raja & Nagasubramani, 2018). The Higher Education, Science, Research and Innovation Policy and Strategy (2020–2027) discuss the modern development of education, in which technology plays an innovative part, and the development of the learning process to prepare for the 21st-century university (Ministry of Higher Education, Science, Research and Innovation, 2020). There is a discussion in our society that questions the adaptation of Thai universities in the digital era, the point of this debate is that if universities remain unrevised, they may soon lose relevance. Nowadays more learning options are available and finding a job may not depend on university education as it has in the past (Thai Post, 2019). For instance, in Thammasat University, the curriculum has been adjusted to meet the needs of the learners by providing open courses for the general public, regardless of age, in the online learning style for the convenience of time and place of learners (Marketing Oops!, 2019).

However, a limiting issue of Thai education is that the system of curriculum development in universities is still not flexible enough. This makes it possible to only adjust elective courses, which are more flexible (Techsauce Team, 2020). From an international perspective, the transformation of higher education into the digital era has been widely discussed in recent years. The main trigger was the spread of the COVID-19 virus which disrupted school learning and teaching of online classes in many countries worldwide. This pandemic crisis is a significant element in changing the educational model and curriculum. The trend of using digital technology in teaching and learning has increased dramatically. The educational institutions need to prepare the teaching skills for using technology, the ICT (Information Communication Technology) infrastructure, the content about using ICT, and ethical issues must be considered (Ramaswamy, 2021).

## Research Objectives

This research aimed to analyze the concept of the digital era in the higher education music curriculum. It also attempted to provide recommendations for the development of music education in the digital era.

## Literature Review

**The Curriculum in the Digital Era.** In 2019, the Organization for Economic Co-operation and Development (OECD) released a report on education in the digital age, which demonstrated the increasing employment rate—in particular those who had the skills in information, and communication technology. It also showed the growth and trend of using information and communication technology in education, including adjusting the curriculum at the higher education level and developing teachers' skills regarding technology use. Consequently, this has indicated a need for developing education and curriculum in the digital age. Furthermore, studying curriculum-based outcomes also revealed that educators who were trained or developed in using technology became one of the critical factors in teaching effectively (OECD, 2019).

Saykili (2019) has studied the changing characteristics of learners in the digital era and found that learners can use information technology and communication skills well and can process many things at the same time (Multiprocessing), which is another factor affecting teaching and learning management. Furthermore, there is a greater response to communication with images or through the screen rather than text. It has been also found that universities face challenges in teaching and learning for digital learners. This change also affects the role of instructors in transitioning from functioning as an information provider to as a facilitator for learning, which the current university system does not allow.

According to Coccoli et al. (2014), having a modern curriculum will also affect the creativity of a modern university because having a good curriculum creates creative learners. It can also develop qualified graduates for employment. A model for curricula development should begin with exchanging perspectives among the stakeholders in educational partnerships, whether they are learners, teachers, educational institutions, researchers, or employers, to collect information on the needs of education management and produce the vision and goals of future education (Coccoli et al., 2014). This process is used to assess course quality and develop the curricula in higher education in Thailand. (In-klai et al., 2020).

Nowadays, concepts in the development of higher education courses have critically changed. In the United Kingdom, the concept of co-creation of higher education curricula has been introduced, which focuses on engaging learners in the design of courses that will make them feel involved in teaching and learning, while

also increasing the relationship between classmates. According to Taylor and Bovill (2017), in creating a curriculum, the emphasis on authority must be equal between the instructor and the learner, unlike the traditional model where the instructor is solely authorized.

**Music Curriculum in Higher Education—A Thai Context.** In Thailand, the curriculum of music education at the higher education level is currently categorized into bachelor's, master's, and doctoral levels offered in educational institutions specialized in music, such as the Buditpatanasilpa Institute, Mahidol University (the College of Music), Rangsit University (Conservatory of Music), and Chulalongkorn University (the Department of Music in the Faculty of Fine and Applied Arts and the Department of Music in the Faculty of Education).

Music programs that the Ministry of Education (2016) accredits at the higher education level are grouped according to three areas: Fine Arts, Education, and Music. Each course has a structure that the Ministry of Education determines regarding the number of credits and subject areas. For example, for Bachelor of Fine Arts, the total number of credits must be at least 120 credits, comprising general education courses of not less than 30 credits, specialized courses of not less than 84 credits, and free elective courses of not less than six credits. In a specific category, the content of the course, namely core subjects, must be determined to contain at least the knowledge of music history, music theory, and practical skills relevant to music creativity and music technology courses (Ministry of Education, 2015). For a degree in education, the course content focuses on teachers' teaching and professional experience (Ministry of Education, 2019). In graduate studies, the ministry of education does not determine the course structure, in which the requirement of graduation relies on thesis writing and lecturers, and academic groups (Ministry of Higher Education, Science, Research and Innovation, 2015).

Today, the music programs offered in the country are diverse, and there are many institutions providing music programs; approximately 80 music programs are offered at both state-owned and private universities (see also Laovanich, Chuppunnarat, Laovanich, & Saibunmi, 2021). Besides, music programs in Thailand have a wide variety of cutting-edge disciplines such as sound design and media composition at Rangsit University and Music Engineering, and Mixed Media at King Mongkut's Institute of Technology Ladkrabang. These emerging courses and curricula have been developed to meet the needs of today's students.

It is interesting to note that music programs in Thai universities also reflect credible universities in the United States and the United Kingdom. For instance, the Music Performance program at the Juilliard School and the Curtis Institute of Music, the Computer Software Engineering program at the Berklee College of Music, and the Music Business program at the University of Southern California (“2021 Best Colleges for Music in America,” 2021). Besides, music programs in the United States also have a similar curriculum structure to Thailand’s higher education music courses with some subjects focusing on the development of music instrumental skills. Music institutions in the United Kingdom are also classified similarly to higher education music education in Thailand; they offer a wide variety of courses for students to choose from according to their specialties, such as the field of music performance, music education, and music anthropology (The Guardian, 2021).

According to Aguilar and Dye (2019), the US Music Education Management Standards was reported to develop learners to understand the educational policy and policy guidance better. Nevertheless, it did not define learning management, which is a necessary skill for pursuing work opportunities after graduation. In order to develop music curriculums in a changing global context, some organizations have been set up to study music development in the 20<sup>th</sup> century. However, according to Myers (2016) music courses (e.g., music performance) do not effectively prepare musicians for future careers requiring technological skills, business administration, or many other related skills that musicians are expected to have in the 20<sup>th</sup> century.

### **Research Methodology**

This research employed the documentary analysis method. The music curriculum was gathered 15 music curricula in higher education degrees valid in the 2018–2022 academic years, including those from all regions of Thailand (i.e., North, South, Central, West, East, Northeast, and Bangkok).

This research employed the documentary analysis method (Bohnsack & Weller, 2010; Fitzgerald, 2012) to analyze the contents in the four areas of music curriculum: (1) philosophy of curriculum, (2) curriculum structure, (3) course description, and (4) pedagogy and assessment (see Figure 1 for the conceptual framework). Researchers used the keywords to identify the concept of the digital era that appeared in the four areas of the curriculum. Five specific keywords were used to investigate the relevance of the digital concepts in the curriculum: (1) digital, (2)

technology, (3) student-center, (4) computer, and (5) 21<sup>st</sup> century. The appearance of the keywords in each section was analyzed to find the concept of the digital era.

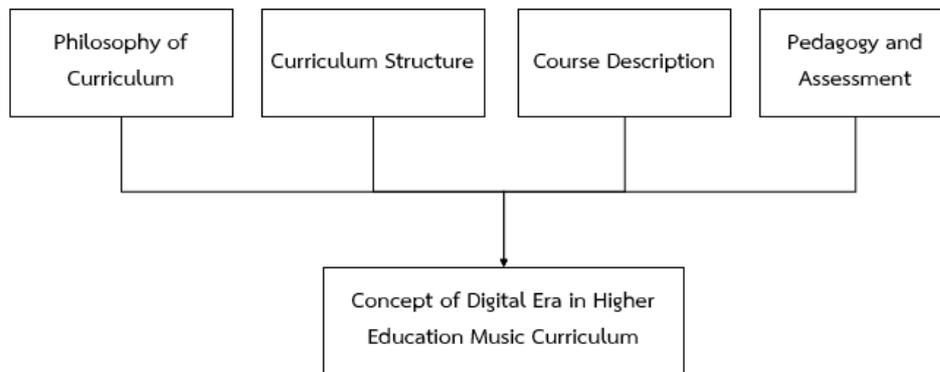


Figure 1. Conceptual Framework

### Research Findings

The analysis found the frequency with which keywords appeared in all sample music curricula. The use of digital era concepts in different curriculum areas is shown below (See Table 1).

Table 1. Total Numbers of Keywords in the Curricula

Region	Bangkok	North	North	Central	Central	South	North	West	Bangkok	Northeast	North	South	East	Northeast	Bangkok
Year	2017	2017	2018	2018	2018	2018	2019	2019	2019	2019	2020	2020	2021	2021	2021
Philosophy			(5) = 1									(2) = 1			
Curriculum Structure	(2) = 2	(2) = 1 (4) = 3	(2) = 1 (4) = 3	(1) = 1 (2) = 2 (4) = 3 (5) = 1	(1) = 1 (2) = 7 (4) = 1	(2) = 1 (4) = 2	(1) = 1	(1) = 2 (4) = 2 (5) = 1	(2) = 4 (4) = 1	(1) = 2 (2) = 2 (4) = 2	(1) = 1 (2) = 2	(2) = 2 (4) = 3	(1) = 2 (2) = 2 (5) = 2	(2) = 2 (5) = 1	(2) = 4 (4) = 1
Course Description	(2) = 2	(2) = 5 (4) = 7 (5) = 1	(2) = 1 (4) = 5	(1) = 4 (2) = 6 (4) = 4 (5) = 4	(1) = 1 (2) = 12 (4) = 2	(4) = 2		(1) = 8 (4) = 2 (5) = 2	(1) = 3 (2) = 9 (3) = 1 (4) = 4 (5) = 1	(1) = 6 (2) = 6 (3) = 2 (4) = 5 (5) = 3	(1) = 2 (2) = 2 (4) = 1	(2) = 3 (4) = 3	(1) = 3 (2) = 7 (4) = 3 (5) = 2	(1) = 3 (2) = 4 (4) = 3 (5) = 1	(2) = 6 (4) = 2
Pedagogy	(3)	(3)	(2) (4)	(2) (4) (5)				(3)			(3)				(3) (4)
Coding (1) = digital (2) = technology (3) = student-center (4) = computer (5) = 21 <sup>st</sup> century															

According to the analysis, the concept of the digital curriculum has emerged in many music curricula since 2017. Technology is the most mentioned keyword that was found in both the determination of specific technology-related courses and located in the course description section specifying the technology content. The majority of the curriculum did not mention the concept of the digital era in their philosophy. Still, it can be seen in other areas, mainly in the course description. The keyword “computer” appeared both in curriculum structure and course description to confirm that using a computer in music learning is essential. The idea of “the 21<sup>st</sup>

century” was mentioned in the curriculum structure and course description as the keyword “technology” to show the concept of transforming to a new era. The less mentioned keyword is student-center which relates to the idea of pedagogy. Based on the analysis, the concept of the digital era in the music curriculum appeared in four areas with specific objectives.

**Philosophy of Curriculum.** The analysis of curriculum philosophy found that most curriculum philosophy aims to develop the students to be good at music knowledge, music skills, and ethical concepts to be good people in our society—the idea of the digital era is not yet prevalent in curriculum philosophy. Only two curricula mentioned that digital concept in their philosophy, including “Prepare the student for the 21<sup>st</sup> century” and “Applying technology with music.”

**Curriculum Structure.** The digital era concept is found in all curriculum structures. It could be categorized into two categories of the course structure. First, the course about using technology and computers belongs in the general education course set—the courses related to using technology in daily life or using computers and ICT for learning. For example, the “Digital Skill” course teaches creating and disseminating online videos, images, music, messages, and news, digital application in daily life, business, and society, and emerging technologies. Second, the course about using music technology in the set of the core course. The music technology major requires core courses where students must learn about different techniques used in music. In the music education major, technology is applied with educational contents such as “Innovation and Technology in Music,” which includes music computer technology, equipment, and components in creating a computer music program, mass media, and music educational innovation. The table below shows a list of courses in the Music curriculum related to the digital concept.

**Table 2.** List of Courses Related to Digital Concepts in the Music Curriculum

General Education Course Set	Music Core Course Set	Elective Course Set
<ul style="list-style-type: none"> <li>▪ Energy and Technology around Us</li> <li>▪ Digital Skill</li> <li>▪ Communication in Digital Society</li> <li>▪ Fundamentals of Computer and Information Technology</li> <li>▪ Digital Literacy</li> <li>▪ Environment and Green Technology</li> <li>▪ World, Science and Technology</li> <li>▪ Life and Technology Information Technology and Communication</li> <li>▪ Life and Technology Information Literacy Skills</li> <li>▪ Information Technology for Learning</li> <li>▪ Production of Computerized Music</li> <li>▪ Computer Skills in Dynamic World</li> <li>▪ Life and Modern Technology</li> </ul>	<ul style="list-style-type: none"> <li>▪ Digital Media Practice for Entertainment</li> <li>▪ Music Technology</li> <li>▪ Technology and Recording for Music</li> <li>▪ Information Technology Innovation and Educational Communication</li> <li>▪ Innovation and Technology in Music</li> <li>▪ Music Teaching Innovation and Technology</li> <li>▪ Digital Recording Technology</li> <li>▪ Music Technology Internship</li> <li>▪ Electronic Live Music Technology</li> <li>▪ Innovation and Information Technology for Educational Communication and Learning</li> <li>▪ Productions of Computerized Music</li> <li>▪ Innovation and Technology Digital for Education</li> <li>▪ Introduction to Music Computer</li> <li>▪ Information and Communication Technology for Education</li> <li>▪ Research and Development in Learning Innovation</li> <li>▪ Technological Media for Learning Management</li> <li>▪ Technology for Music Education</li> <li>▪ Innovation Information Technology and Communication in Education</li> <li>▪ Information Technology for Lifelong Learning</li> <li>▪ Computer for Thai music</li> <li>▪ Technology and Innovation for Music</li> </ul>	<ul style="list-style-type: none"> <li>▪ Music in Computer Technology</li> <li>▪ Music Innovation</li> <li>▪ Music Education for 21<sup>st</sup> Century</li> <li>▪ Recording Technology</li> </ul>

**Course Description.** The contents in the course description present the details and elements of the teachings in the course, which imply the concept of each course. The digital concept in the music curriculum is also found in these areas. Technology, computer, and innovation are applied with the general education course related to daily life skills and knowledge. In the music core course, technology and digital expertise enhance music skills in various music major courses. A list of courses with a course description mentioned about the digital concept is shown below.

**Table 3.** List of courses with course descriptions that mention the digital concept

General Education Course Set	Music Core Course Set
<ul style="list-style-type: none"> <li>▪ Information Science for Study and Research</li> <li>▪ Living Management</li> <li>▪ Life Privacy</li> <li>▪ Introduction to Computer Information Science</li> <li>▪ Man, and Environment</li> <li>▪ Information for Study Skills</li> <li>▪ Thai Society and the Current ASEAN Community</li> <li>▪ Basic E-Commerce</li> <li>▪ Innovation Creative for Local Development</li> <li>▪ Awareness of Change and Adaptation</li> <li>▪ Technology and Creativity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Music Student Development</li> <li>▪ Music Industry</li> <li>▪ International Music Business</li> <li>▪ Process and Musical Learning for Primary School</li> <li>▪ Music Theory and Aural Training Pedagogy</li> <li>▪ Music Composition</li> <li>▪ Research and Development in learning Innovation</li> <li>▪ Practicum in Teaching Profession</li> <li>▪ Music Education Instruction Preparing</li> <li>▪ Competency Based Curriculum Development</li> <li>▪ Competency Based Instructional</li> <li>▪ Research and Development in Innovation and Learning</li> <li>▪ Preparation for Co-operative Education in Music</li> <li>▪ Research Studies in Music</li> <li>▪ Communicative Language for Teachers</li> <li>▪ Popular Guitar</li> </ul>

**Pedagogy and Assessment.** Four keywords appear in the pedagogy area: technology, student-center, computer, and 21<sup>st</sup> century. The student-center practice is widely found, unlike the mentioned concept of using technology and computer in teaching, which is rarely seen in the samples. In the assessment area, every curriculum in higher education had numerical analysis, communication, and use of information technology as one of the criteria for evaluating the course. The focus and aims of evaluation in this section varied in the sample. It depended on each curriculum to design their learning objective and emphasize learning outcomes.

### Conclusions, Discussion, and Recommendations

The high number of keywords in the curriculum structure showed the need of updating the music curriculum in order to prepare students for the 21<sup>st</sup> century and digital environment. The research findings demonstrated the awareness of social behavior change in using technology. Due to the pandemic breakout in 2020, the speed of using technology in teaching and learning became prominent (Ramaswamy, 2021). Accordingly, the adaptation of the music curriculum in the next decade may need more applied technology learning curriculum or courses that mainly focus on using digital technology (Raja & Nagasubramani, 2018).

Additionally, it is evident that the digital teaching practice in higher education requires skilled and knowledgeable educators, resonating with the studies done by many scholars (e.g., Coccoli et al., 2014; Means, 2010; Raja & Nagasubramani, 2018; Selwyn, 2012). However, this study suggested that the proficiency of using technology or digital knowledge by the academic staff in higher education was questionable. While using a student-center approach is not a new idea for teaching in the 21<sup>st</sup> century, technology use and digital expertise were not given sufficient attention. Therefore, professional development for music educators in higher education is needed as it plays an essential role in addressing this issue (Means, 2010; Saykili, 2019). Moreover, the findings also revealed that the proportion of digital concepts from the samples was deficient, suggesting that more digital concepts should be added to the curriculum in order to capture the digital perspective. As Means (2010) suggested, “Education policymakers and practitioners need to think about the implementation of technology-supported interventions as a process of iteration and refinement” (p. 304).

### References

- 2021 Best Colleges for Music in America. (2021). **NICHE**. <https://www.niche.com/colleges/search/best-colleges-for-music/>.
- Aguilar, C., & Dye, C. (2019). Developing music education policy works: Preservice music education and policy. **Journal Of Music Teacher Education**, 29(2), 78–88. <https://doi.org/10.1177/1057083719885335>.
- Bohnsack, R., Pfaff, N., & Weller, W. (2010). **Qualitative analysis and documentary method: In international educational research** (p. 369). Verlag Barbara Budrich.
- Coccoli, M., Guercio, A., Maresca, P., & Stanganelli, L. (2014). Smarter universities: A vision for the fast changing digital era. **Journal Of Visual Languages & Computing**, 25(6), 1003–1011. <https://doi.org/10.1016/j.jvlc.2014.09.007>.
- Fitzgerald, T. (2012). Documents and documentary analysis. **Research methods in educational leadership and management**, 3, 296–308.
- In-klai, L., Jitgaroon, P., & Pongajarn, W. (2020). The curriculum development process higher education: A case study of Pibulsongkram Rajabhat University. **Humanities And Social Sciences Journal of Graduate School, Pibulsongkram Rajabhat University**, 14(1), 158–174.

- Laovanich, V., Chuppunnarat, Y., Laovanich, M., & Saibunmi, S. (2021). An investigation into the status of Thailand's music education systems and organisation. **British Journal of Music Education**, 38(2), 131–144. doi:10.1017/S0265051720000327.
- Marketing Oops! (2019). **Thai education must transform! Take off the case study “Thammasat” to revolutionize learning-exams in the digital era.** <https://www.marketingoops.com/news/biznew/thammasat-university-digital-transformation/>.
- Means, B. (2010). Technology and education change: Focus on student learning. **Journal of research on technology in education**, 42(3), 285–307.
- Ministry of Education (2015). **Notification of the ministry of education re: Standards for bachelor's degree qualifications fine arts.** [http://www.mua.go.th/users/tqfhed/news/data6/Bachelor%20of%20Fine%20and%20Applied%20Arts\\_m1.pdf](http://www.mua.go.th/users/tqfhed/news/data6/Bachelor%20of%20Fine%20and%20Applied%20Arts_m1.pdf).
- Ministry of Education (2016). **Notification of the ministry of education in criteria for educational degree in music.** [http://www.mua.go.th/users/tqf-hed/news/data6/Bachelor%20of%20Education-4Y-2562\\_m1.pdf](http://www.mua.go.th/users/tqf-hed/news/data6/Bachelor%20of%20Education-4Y-2562_m1.pdf).
- Ministry of Education (2019). **Notification of the ministry of education re: Standards for bachelor's degree qualifications education and education (4 -year course).** [http://www.mua.go.th/users/tqfhed/news/data6/Bachelor%20of%20Education-4Y-2562\\_m1.pdf](http://www.mua.go.th/users/tqfhed/news/data6/Bachelor%20of%20Education-4Y-2562_m1.pdf).
- Ministry of Higher Education, Science, Research and Innovation (2020). **Policies and strategies of higher education, science, research and innovation 2020 – 2027**. Bangkok: Office of the Policy Council Higher Education, Science, Research and Innovation National and Office of the Science Promotion Board Research and innovation.
- Ministry of Higher Education, Science, Research and Innovation (2015). **Announcement of the ministry of education Re: Standards criteria for graduate programs B.E. 2 5 5 8**. [http://www.bhes.mua.go.th/front\\_home/criterion58/criterion%20\\_m58.PDF](http://www.bhes.mua.go.th/front_home/criterion58/criterion%20_m58.PDF).
- Myers, D. (2016). Creativity, diversity, and integration: Radical change in the bachelor of music curriculum. **Arts And Humanities in Higher Education**, 15(3–4), 293–307. <https://doi.org/10.1177/1474022216647378>.

- OECD. (2019). Upgrading education for the digital era. In **Economic outlook for Southeast Asia, China and India 2020: Rethinking education for the digital era**. OECD Publishing. <https://www.oecd-ilibrary.org/docserver/ff309743-en.pdf?expires=1621134681&id=id&accname=guest&checksum=1C843285AEE428EE6394E77C10A16A8B>.
- Ramaswamy, N. (2021). **Dawn of a digital era in education: Why it is crucial to be mindful of the gaps in the digital experience**. The Financial Express. Retrieved from <https://www.financialexpress.com/opinion/dawn-of-a-digital-era-in-education-why-it-is-crucial-to-be-mindful-of-the-gaps-in-the-digital-experience/2026588/>.
- Raja, R., & Nagasubramani, P. C. (2018). Impact of modern technology in education. **Journal of Applied and Advanced Research**, 3(1), 33–35.
- Saykili, A. (2019). Higher education in the digital age: The impact of digital connective technologies. **Journal of Educational Technology and Online Learning**, 1–15. <https://doi.org/10.31681/jetol.516971>
- Selwyn, N. (2012). **Education in a digital world: Global perspectives on technology and education**. Routledge.
- Taylor, C., & Bovill, C. (2017). Towards an ecology of participation: Process philosophy and co-creation of higher education curricula. **European Educational Research Journal**, 17(1), 112–128. <https://doi.org/10.1177/1474904117704102>.
- Techsauce Team. (2020). **Insight into the major adaptation of Kasetsart University to the digital world with Big Data, enhanced with AI**. Techsauce. <https://techsauce.co/tech-and-biz/digital-transformation-ku-big-data-ai>.
- Thai Post. (2019). “**Digital University’ model: creatively breaking away the past.**” **Freedom of thought**. <https://www.thaipost.net/main/detail/41058./education/nginteractive/2020/sep/05/>
- The Guardian. (2021). **Best UK universities for music – league table**. <https://www.theguardian.com/education/ng-interactive/2020/sep/05/best-uk-universities-for-music-league-table>.

# THE CREATION OF THE SOUND EFFECT INSPIRED BY THE AURA OF THAI LITERATURE

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## Abstract

This creation is to design Sound Effects inspired by the aura of Thai Literature name “Phra Aphai Mani”. Which has a movement of composing according to the aura in literature, and is able to convey the character’s emotions and feelings by 4 perception tastes. This creation is intended for designing Sound Effects inspired by The Aura of appearing in Thai literature.

By the composer had studied sound effects design and sound composing technology to use in present audio arts. Using sound effect creation theory, Basic Sound Qualities and Sound Design Concepts, to convey and express the emotions of the 4 perception tastes in the literature clearly. However, the researcher selected the sound from the synthesizer instrument together with natural sounds, by using Logic Pro X program. And using the Izotope program for mixing down, to view and analyze audio files.

The creation of the Sound Effect and able to convey the emotions and feeling by 4 perception tastes. From bringing the audio file to 3 experts to be heard and criticized, found that all 4 sound effects can be used and can convey the emotions according to different tastes very well.

**Keywords:** Sound Effect, The Aura of Literature, Phra Aphai Mani

## Introduction

Inspiration. The creation of “The Sound Effect by The Aura of Thai Literature” was inspired by literature through the poem “Phra Aphai Mani”. Which from reading in some scene, found that can express a different emotion, such as Love, Happiness, Anger and Sorrow. Not even having images or video to explain, but it was able to feel the feeling of the surrounding atmosphere of the characters or it is called, there is a style of writing according to the taste in literature, able to convey the emotions and

feelings of the characters in the poem. The aura in Thai literature consists of 4 perception tastes (Raksamanee, 1987), which are Saoworajanee (Admire the beauty), Naree Pramote (Courtship), Pirothavatang (the Anger), and Sallapang Kaphisai (the Sorrow). Therefore, the researcher is interested in presenting a creative sound effect design, by interpreting from the 4 perception tastes in Thai literature. Taking into account the aura of the sound to be comprehensive for communicate and express the emotions of the 4 perception tastes in the literature clearly. However, the researcher uses the sound from the synthesizer instrument together with natural sound.

### Objectives

To creation and design the sound effect according tastes of Thai Literature.

### Literature Review

(Alten, 2013) A sound effect is any sound that is not a dialog or the sound of music, but those sounds are created to create a realism essential to storytelling. The art of sound effect design able to create narrative elements for different moments, places, or character developments. For example, traffic noise that indicates a city, typewriter sound that indicates a writer, the whistle that indicates the traffic police. Etc. Which sound effects can be subdivided into several of elements, such as

**Ambience** is a sound that is not related to any object. Rather, it is used to show the environment of the place where the story is going. Such as the city noise bustling through the hotel window into the bedroom, air conditioning, light bulbs, electrical equipment sound. Many sound effects were created with many techniques to enhance the taste in storytelling. Sound effects can be generally according context or narrative. And it can increase value to the work as well. (Beauchamp: A.D. 2005)

**Sound Qualities** (Sonnenschein, 2001) Sound Effects have characteristics of sound such as Rhythmic, Loudness, Pitch, Speed, and Shape.

**Rhythm**, can be separate into two types: **1) Rhythmic** (Sonnenschein, 2001) such as breathing sounds, heartbeat, clock ticking. Etc. Listeners can easily predict, and can give a feeling of peace and confidence. (Tangeksorn, 2013). A steady rhythm can indicate depression or regularity. **2) A Complex rhythm** can indicate confusion or refinement. Changing rhythm can convey a strength or irregular (Sonnenschein,

2001). Such as a sound of conversation, the whale sound, etc., this type of sound can cause the listener to feel alert, scared, confused or laugh.

**Loudness** is the intensity of sound, which is a level value, can measure in decibels (dB). **Loud sound** may cause feelings of threat, tension and oppression. (Gae - Lynn Woods, 2015) gave an idea of the volume of the sound that, if the sound that is louder than usual will make a feeling uncomfortable, insecure and dangerous. Or it may be used to indicate a feeling of closeness, strength or importance. **Soft sounds** can indicate tenderness, fragility (Alten, 2013) or can mean distant or weakness. **Silence** (Sonnenschein, 2001) can indicate a being alone or no hope. Some sounds are created to represent silence, such as the chirping of animals, the sound of leaves swaying, or the sound of water droplets on the water surface. Sometimes these sounds can indicate silence better than true silence.

**Pitch** (Tangeksorn, 2013) are the frequencies of sound from lower (bass) to higher (treble). Normally humans can hear sounds in the frequency range of 20 – 20,000 Hz. **High frequency** causes a feeling of discomfort and tension, therefore high-frequency is often to use in emphasize excitement scenes. **Middle frequency** (Hengwattanarpha, 2016) (400 – 2,600 Hz.) is the most people hear. It gives a feeling of comfort, relaxation or warmth. It can be used for general mood scenes. **Low frequency** (Sonnenschein, 2001) caused a feeling of anxiety, fear, and mystery. It is often to use for emphasize the seriousness of scenes. Exciting scenes usually start with low frequency sounds that can increase the excitement.

**Speed** (tempo) (Alten, 2013) means the speed of a beat. When the sound occurs, we can feel a slow or fast beat. **A Slow beat** may indicate boredom, elegance or being in control. But when the beat slows down beyond the ability to perceive continuity, feelings will turn to distraction. **A Fast beat** may indicate excitement or acceleration.

**Shape of sound** (Alten, 2013) which describes each sound moment such as, **Attack** refers to the beginning buildup of a note. This means how quickly the instrument expresses all of its frequencies and if there are any differences in the onset of harmonics. **Decay** refers to how long the fundamental frequency and harmonics remain at their peak loudness until they start to disappear. **Sustain:** Sets the steady amplitude level produced when a key is held down. **Release:** Sets the time it takes for the sound to decay from the sustain level to an amplitude of 0 when the key is released. Abbreviate as ADSR. Characteristics of sound shapes can be

divided into 2 types as follows, **1) Impulsive** is characterized by sounds that occur, and dissipate rapidly, such as gunshots, drums, punches, finger snaps, and can indicate clarity, excitement. And **2) Reverberant** refers to sounds that occur slowly and disappear slowly, such as the sound of a violin, cymbals, can indicate tenderness, stillness, or boredom.

**Sound design concept** (Holman and Baum, 2013) is the art of using sound appropriately. This research has applied various interesting concepts and theories related to sound design as follows:

**Category of Emotion** (Friedrich Marpurg, 1718 - 1795) Make an effort to categorize a clear emotional state according to the rhythm of pronunciation and notes, by grouping the types of sounds according to their mood and changing the mood of the sound as follows table

**Table 1** Emotions and feeling transformation into sound characteristics

Emotion	Transformation into the Sound
Depressed	Wailing, slow, uses nearby paired notes to create an inconsistent sound.
Happiness	Concise, lively, warm tones. Use a sound that is consistent and not harsh to the ears.
Love	The melodies are soft, beautiful, and often sound harmonious.
Angry	Sound expressive hatred mixed with frequent notes; sudden change to a lower sound attack movement and disharmony screams.

Source: (Rungpop Preechawit, 2020)

### Conceptual Framework of Creative work

In creation Sound Effect designs according to aura of Thai literature. The composer has interpreted 4 perception tastes in the literature as follows: Saoworajanee (Admire the Beauty), Naree Pramote (Courtship), Pirothavatang (the Anger), and Sallapang Kaphisai (the Sorrow). Through some episodes of the poem about Phra Aphai Mani. To conveys and express the emotions of the 4 perception tastes in the literature clearly. However, the researcher uses the sound from the synthesizer instrument together with natural sounds.

**1. Saoworajanee (Admire the beauty)** is to compliment the beauty of the characters in the story. This could be either a human, non-human, or animal

character. (Wongtip, 2019). From the Literary Appreciation, defined as, the mermaid picks up her husband escape to the sea, Phra Aphai Mani also admired the surrounding nature as the following poem

“Prachomyong Ongaphai Maninat      Plernprapas Pisdoo Moomacha  
Laochalam Luantam Kanma              Koiklenkla klaiklad Naisaichon  
Chnakuu Kuuchnak Maijakkuu          Kuenfongfuu Ponfong Laongfon  
Fungpimpha Pafung Khaofangwon      Bangpudpon Fongnam Bangdumjorn”

Source: (Kittipong Wongthip, 2019)

**Sound effect design principles** to create a happy mood. From that poem, the composer has interpreted the happiness of Phra Aphai Mani was to appreciate and enjoy the beautiful nature. And has synthesized sound effect design theory to create a happy mood according to the following principles,

1.1 Rhythm: Sound design with simple, uncomplicated to make feeling comfortable.

1.2 Loudness: Sound design soft, light to indicate tenderness.

1.3 Pitch: Sound design use mid-frequency to indicate comfort and warmth.

1.4 Tempo: Sound design uses slow beats to create elegance.

1.5 Shape: Sound design reverberant to indicate the gentleness.

1.6 Categories of Emotional: Concise, lively, using warm tones. Use a sound that is consistent and not harsh on the ears.

1.7 Ambience: uses nature sounds that show the feeling of the sea atmosphere.

**2. Naree Pramote (Courtship)** Chapter showing affection or eloquently to give the other satisfaction. (Wongtip, 2019) From the Literary Appreciation, defined as the great love of young man has for the woman he loves. This poem said that no matter where the girl was, the young man would follow even if they were far away from different worlds. As the following poem;

“Tungmuaydin Sinfar Mhasamutra              Maisinsud Kwamrak Samaksaman  
Mankerdnai Tailar Sutatarn                      Korpobparn Pisawas Mikradkla  
Mannuayen Penhuang Mahannop              Pee Korppop Srisawas Penmucha  
Manpenbua Tuapee Penpummara              Cheypaka Gosum Pratumtong  
Chaopenthum Ampai Korhaippee              Penrajasih Somsuu Penkuusong  
Jatidtam Samsanguan Nualaong              Penkukrong Pisawas Tukchatpai”

Source: (Kittipong Wongthip, 2019)

**Sound effect design principles** to create an emotion and love. From that poem, the composer has interpreted happiness. And has synthesized sound effect design theory to create an emotion and love according to the following principles,

2.1 Rhythm: Sound design with simple, uncomplicated to make feeling comfortable.

2.2 Loudness: Sound design soft, light to indicate tenderness.

2.4 Pitch: Sound design use mid-frequency to indicate comfort and warmth.

2.5 Tempo: Sound design uses slow beats to create elegance.

2.6 Shape: Sound design reverberant to indicate the gentleness.

2.7 Categories of Emotional: Concise, lively, using soft melody, beautiful, and harmonious.

2.8 Ambience: uses a nature sounds that beautiful and warming.

**3. Pirothavatang (the Anger)** is anger or scolding with resentment. (Wongtip, 2019) From the Literary Appreciation, defined before an ogress (yak) named Nang Phisuea Samudr went out to search her husband (Phra Aphai Mani). Causing the sea to almost collapse, the mountains and islands that stood in the way were completely destroyed by the ogress. There was a loud noise, trembling across the sea. As the following poem;

“NamphisueaSamudr Luarkrod Lodtalung Tordangnung Yukonkhunslai  
Luitaley Kromkram Oaktampai Laolamor Kohkwang Hontangyak  
Siangkrugkrun Krunklum Kuenklumkai Samutai Tapjalom Talomtalay  
Pukhaohak Hinlud Sudslay Phisuea Samudrray Riprud Maiyudyuen”

Source: (Kittipong Wongthip, 2019)

**Sound effect design principles** to create anger. From that poem, the composer has interpreted anger. And has synthesized sound effect design theory to create anger according to the following principles,

3.1 Rhythm: Sound design to have clash rhythm to increase the tension.

3.2 Loudness: Sound design loud to increase tension.

3.3 Pitch: Sound design uses high-frequency to indicate tension and low-frequency to indicate serious scenes.

3.4 Tempo: Sound design uses fast beats to make it exciting.

3.5 Shape: Sound design Impulsive to indicate the exciting.

3.6 Categories of Emotional: Use an aggressive roar sound to create a nuisance, and suddenly change to a low voice clash.

3.7 Ambience: Uses nature sounds that show the sea with storm.

**4. Sallapang Kaphisai (the Sorrow)** the sorrowful emotion from suffering, as well as the separation. (Wongtip, 2019) From the Literary Appreciation, defined when Phra Aphai Mani knew that the ogress was reached. He was disappointed, but there was a fate. Holding the tears and saying that there is no escape, I will die here. Say to the mermaid, leave him here, and hurry away. And said to his son, Sinsamut, "if mother comes, you shall go back with your mom and I'll die here". As the following poem;

“Phra Apaijaihai Maiwhyliaw	Haiplopliaw Naiyana Piangasan
Taemana Kasat Suukadfan	Usahklanklun Namta Lawpatee
Japainai Maiponphi Suarsamudnam	Wibargkramakorjasu Upenphee
Tansongrao Kaotokoh Lamornee	Lawreepnee Painainam Taelampang
Laewakae Singsamutra Sudteerak	Mannangyak Jamarab Jongklablang
Antuapoh Kortay Wayshewang	Kansang Sanglukya Duay alai”

Source: (Kittipong Wongthip, 2019)

**Sound effect design principles** to create sorrow. From that poem, the composer has interpreted and synthesized sound effect design theory to create sorrow according to the following principles,

4.1 Rhythm: Sound design constant, to indicate the depression.

4.2 Loudness: Sound design indicates silence.

4.3 Pitch: Sound design uses low-frequency to indicate anxiety, fear, and serious scenes.

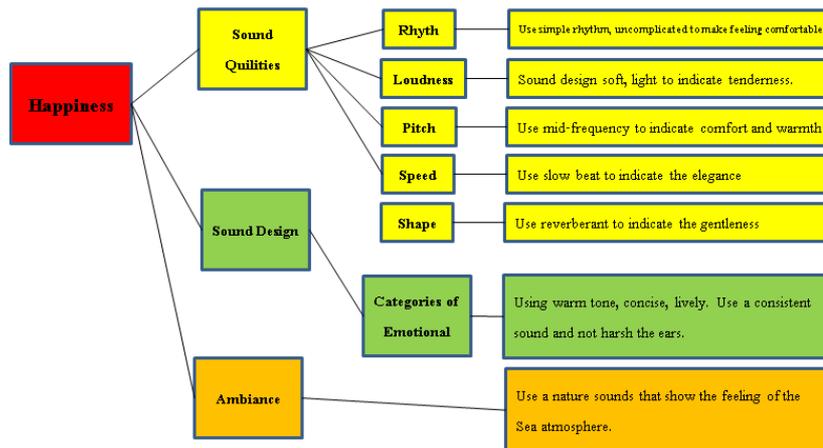
4.4 Tempo: Sound design uses slow beats to create a feeling of elegance.

4.5 Shape: Sound design Impulsive to indicate dangerous.

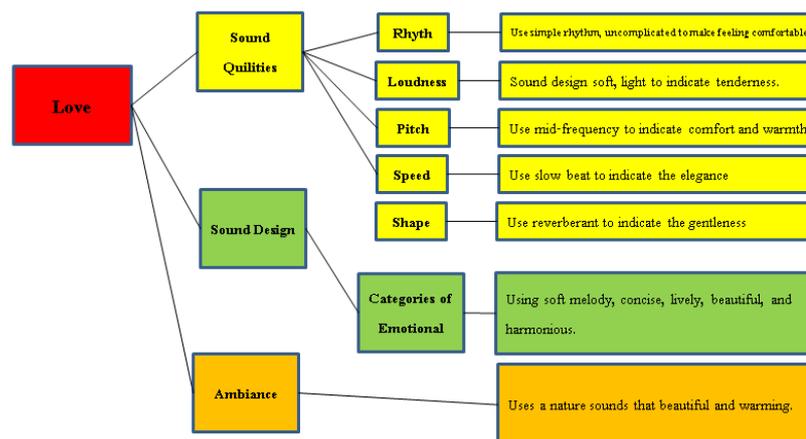
4.6 Categories of Emotional: use a moaning, sluggish to create an inconsistent sound.

4.7 Ambience: uses natural sounds that show the silence sea.

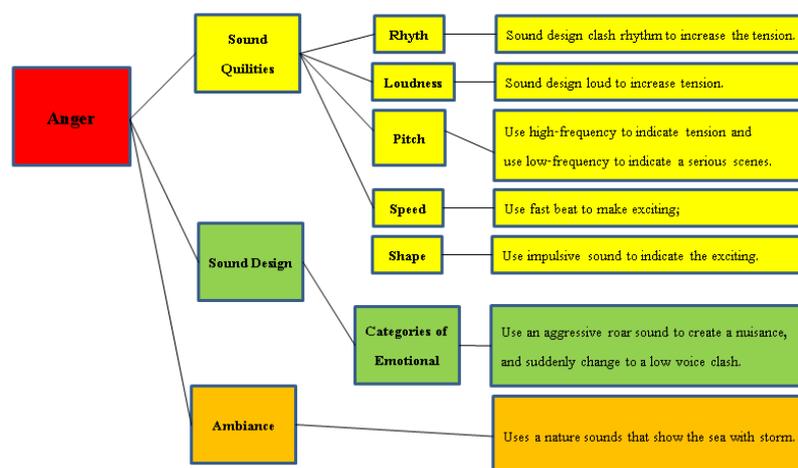
Creative Methodology / Knowledge integration



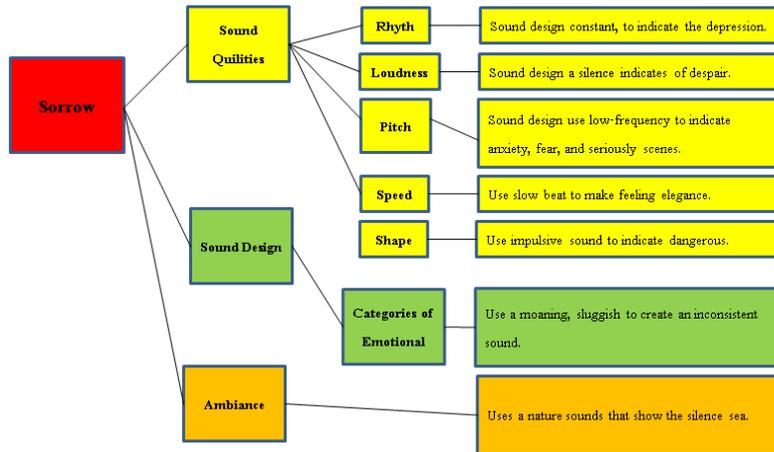
Picture 1: Sound effect design to create a happy mood (Saworajani chapter)



Picture 2: Sound effect design to create a love mood (Naree Pramote Chapter)



Picture 3: Showing the sound effect design to create anger (Wirotwatang Chapter)



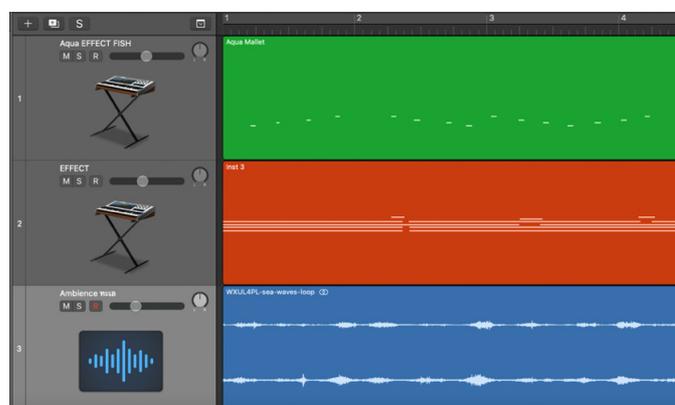
Picture 4: Sound effect design to create a sad mood (Sallapangkphisai chapter)

### Creative work / performance

The creation “Sound Effect designs according to aura of Thai literature”, the researcher uses the sound from the synthesizer instrument together with natural sounds. The composer has interpreted 4 perception tastes in the literature as follows: Saoworajanee (Admire the Beauty), Naree Pramote (Courtship), Pirothavatang (the Anger), and Sallapang Kaphisai (the Sorrow).

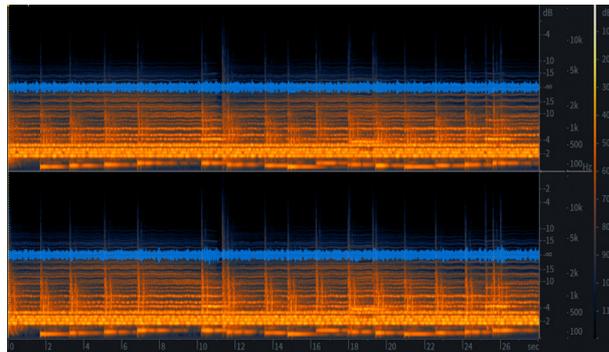
### Characteristics of sound effect design

**Saoworajanee (Admire the beauty)**, the composer has interpreted the happiness of Phra Aphai Mani was appreciated, and enjoy the beautiful nature. The composer chooses a synthesized instrument to create a warm and soft sound from Logic Pro X program, and uses 2 synthesizers to create synthesized sound harmony with ambience sound to be 15 minutes long effect.



Picture 5: Visualization of the use of synthetic sounds wave in the chapter Sawarajanee.

From the above picture, No. 1, the composer has designed the sound to look like a jumping fish for the first synthesizer to indicate the ambience of the Sea. No. 2, on the second synthesizer, plays a reverberant sound like a slow appears and slows disappearing to indicate tenderness. No.3 harmonizes with the ambience sound of the ocean to feel the atmosphere of the sea even more.



**Picture 6:** Shows the wave of Amplitude and the frequency range of the sound in the chapter Sawarajanee.

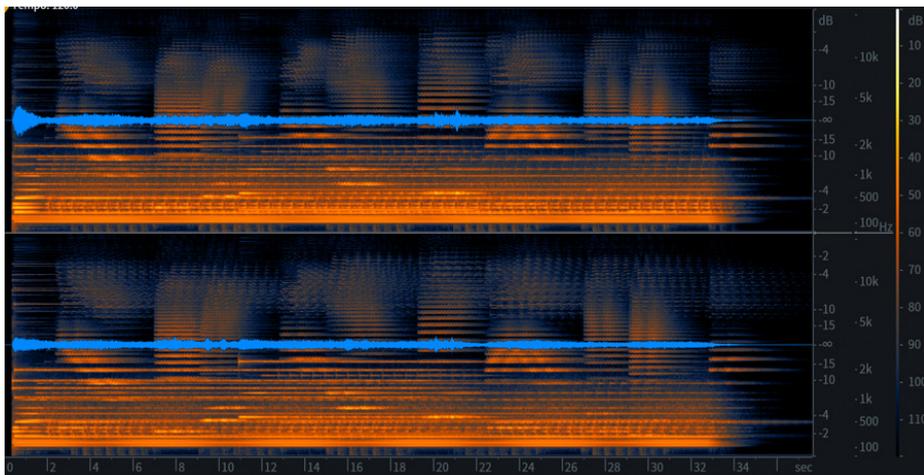
From the above picture, the composer uses Izotope program to analyze the shape of the wave. The composer has designed the amplitude to look soft, to indicate gentleness. (Blue wave lower than -15dB), and design pitch to mid-frequency to indicate comfort and warmth. (Orange wave between 400-2,600 Hz.)

**Naree Pramote (Courtship)**, the composer has interpreted the love. Defined the love of a young man who followed his wife, even though they were far away from different worlds. The composer chooses a synthesized instrument to create a warm and soft sound from Logic Pro X program, and uses 2 synthesizers to create synthesized sound harmony with ambience sound to be 15 minutes long effect.



**Picture 7:** Visualization of the use of synthetic sounds wave in the chapter Naree Pramote.

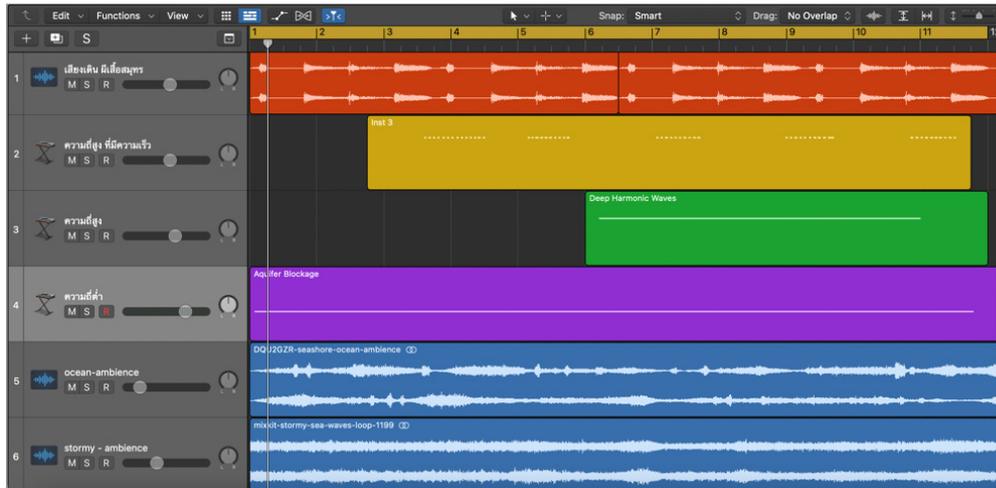
From the above picture, at synthesizer No. 1, the composer has designed the sound like a wind to indicate warming atmosphere of natural. And at synthesizer No. 2 is playing a Reverberant sound like a slowed appears and slows disappearing to indicate tenderness. Harmonizes with No.3, the ambience sound of the forest, bird, and the wind atmosphere.



**Picture 8:** Shows the wave of Amplitude and the frequency range of the sound in the chapter Naree Pramote.

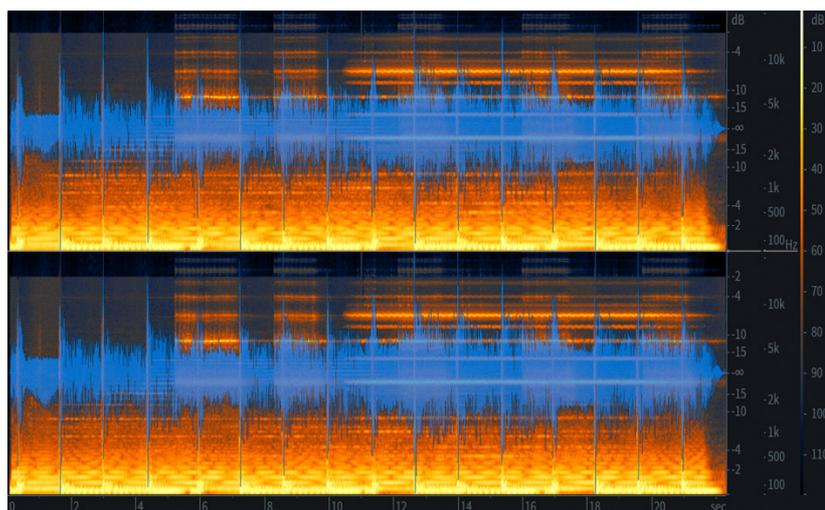
From the above picture, the composer uses Izotope program to analyzing shape of the wave. The composer has designed the amplitude to look soft, to indicate gentleness. (Blue wave lower than -15dB), and design pitch to mid-frequency to indicate comfort and warmth. (Orange wave between 400-2,600 Hz.)

**Pirothavatang (the Anger)**, the composer has interpreted the anger, from the ogress (yak) named Nang Phisuea Samudr go searching her husband, causing the sea to almost collapsing. The mountains and islands that stood in the way were completely destroyed by the ogress. There was a loud noise, trembling across the sea. The composer use Logic Pro X program to make 4 synthesized instruments, harmony with ambience sound to be 15 minutes long effect.



**Picture 9:** Visualization of the use of synthetic sounds wave in the chapter Pirothavatang.

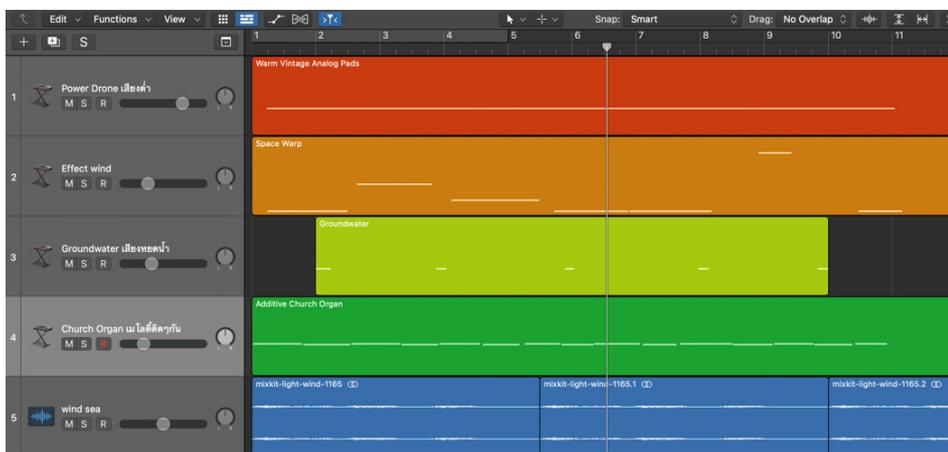
From the above picture, on the synthesizer No.1, the composer uses the sound of a bass instrument to play the sound of the giant walking. And synthesizer No. 2 is playing an impulsive sound like a sudden appears and sudden disappearing to indicate clash. The synthesizer No.3 creates a high frequency sound with a fast tempo to increase excitement. The synthesizer No.4 creates a low frequency to create a feeling of tension.



**Picture 10:** Shows the wave of Amplitude and the frequency range of the sound in the chapter Pirothavatang.

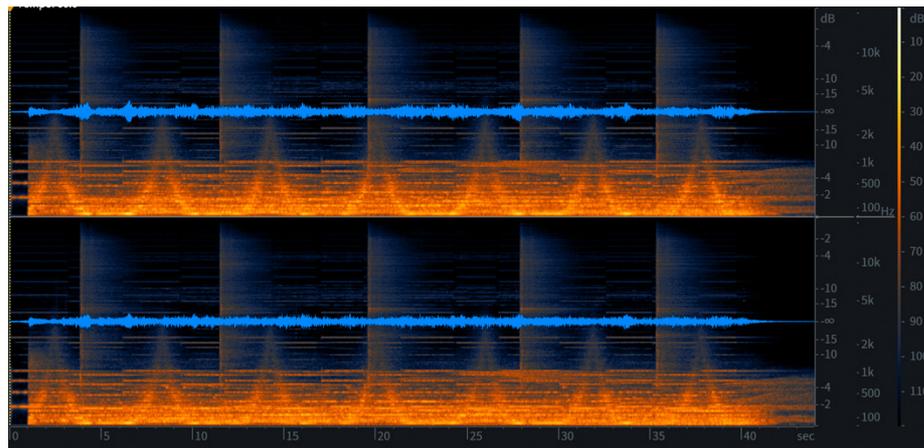
From the above picture, the composer uses Izotope program to analyze the shape of the wave. The composer has designed the amplitude to look louder than 0dB to indicate tension. And designed the sound range switching of low and high frequencies to indicate seriousness scene. Orange wave lower than 500 Hz. switching with orange waves higher than 5,000 Hz.

**Sallapang Kaphisai (the Sorrow)**, the composer has interpreted the sorrowful emotions caused by Phra Aphai Mani's knowing that he cannot escape the Ogress and will sacrifice himself for everyone to survive. The composer Use Logic Pro X program to make 4 synthesized instruments, harmony with ambience sound to be 15 minutes long effect.



**Picture 11:** Visualization of the use of synthetic sounds wave in the chapter Sallapang Kaphisai.

From the above picture, on the synthesizer No.1, the composer uses the sound of a keyboard instrument to play the lower sound. And No. 2 creates the sound of the wind. No.3 creates a sound of water drops to indicate silence. No.4 creates an impulsive sound like a sudden appears and sudden disappearing to indicate clash by chromatic note with slow beat to indicate sorrow.



**Picture 12:** Shows the wave of Amplitude and the frequency range of the sound in the chapter Sallapang Kaphisai.

From the above picture, the composer uses Izotope program to analyze the shape of the wave. The composer has designed the amplitude to look soft and silence to indicate hopelessness. The blue wave is lower than -15dB and shows the sound of silence. And designed the sound range switching of low and high frequencies to indicate seriousness scene. Orange wave lower than 500 Hz. in low frequency. The Orange wave higher than 500 Hz in high frequency to indicate to the concern, fear, and seriousness scene.

In addition, the composer has brought all 4 sound effect files to the expert for listening. And conducting interviews with qualified which is an expert and is a professor at the Faculty of Music Bangkok Thonburi University 3 persons are, Dr. Thitinan Charoensalung is an instructor and specializes in composing, Mr. Nat Chiangthong is an instructor and specializes in music technology and Mr. Thanis Sintharatana, a music theory teacher and is a famous musician artist.

After the composer plays the audio file and explains the principles and concepts of sound creation to the 3 expert opinions, the result is as follows:

The 3 experts commented that composers can use different theories and ideas. 4 sounds effects can convey the mood of different tastes in literature. Such as the chapter of happiness, the chapter of love, the chapter of anger, and the chapter of sorrow, in which the sound effects are arranged perfectly.

## Conclusion

This creation. the composer had studied sound effects design and sound composing technology to use in present audio arts. Using sound effect creation theory, Basic Sound Qualities and Sound Design Concepts, to convey and express the emotions of the 4 perception tastes in the literature clearly. However, the researcher selected the sound from the synthesizer instrument together with natural sounds,

The creation of the Sound Effect and able to convey the emotions and feeling by 4 perception tastes. From bringing the audio file to 3 experts to be heard and criticized, found that all 4 sound effects can be used and can convey the emotions according to different tastes very well.

## Suggestion

Creative “Sound effect design according to the aura in Thai literature” created with sound effect design techniques from the sound effect theory. According to the basic sound qualities and the concept of sound design to express emotions for the modern era. There are still many techniques and theories in sound effect design, that can be used to create sound effects like this. Hope, the creative music “Sound effect design according to the aura in Thai literature”, will be a guideline of composing sound effects for the interested people in the future.

## References

- Alten, S.R. (2013). **Audio in Media**. Clifton Park, United States: Cengage Learning, Inc.
- Beauchamp, R. (2015). **Designing sound for animation**. Taylor & Francis.
- Hengwattanarpha, N. (2016) **The use of sound to create a feeling of fear in Thai ghost movies** Faculty of Communication Arts Chulalongkorn University.
- Holman, T. and A. Baum. (2013). **Sound for digital video**. Taylor & Francis.
- Plack, C.J. (2018). **The sense of hearing**. Routledge.
- Preechawith, R. (2020) **Anger and Fear: Sound effects to communicate emotions in short films**. Faculty of Information Technology, Silpakorn University.
- Rukmani, K. (1987) **Analysis of Thai literature based on the theory of Sanskrit literature**. Bangkok: Project Foundation Textbook of Social Sciences and Humanities.
- Sonnenschein, D. (2001) **Sound design: The expressive power of music, voice, and sound effects in cinema**. Michael Wiese Productions Studio City.
- Tangeksom, P. (2013) **Let's make a movie**. Bangkok: Bioscope Plus printing house.

Wongtip, K. (2019) **Phra Aphai Mani: Chapter Phra Aphai Mani escapes the ogress: A Comparison, modifications content and characters of comics and literature.** Faculty of Humanities Chiang Mai University.

# THE CURRENT SITUATION OF SONGWRITING COURSE IN POPULAR MUSIC MAJOR AT XINGHAI CONSERVATORY OF MUSIC, GUANGZHOU, CHINA

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## **Abstract**

This research aimed to study the current situation of songwriting courses in popular music major at Xinghai Conservatory of Music, China. The qualitative approach was used for collecting data by interviewing four experts in teaching songwriting in universities.

Research results showed the current situation of the songwriting course at Xinghai University, in which the content of teaching theory knowledge is very rich. Still, the creative development of students' practice is lacking. There is no particularly strong experience in all the curriculum arrangements through listening and basic operation to complete a set of the teaching process. The problem in teaching songwriting was found in three main areas which are (1) songwriting cannot be implemented with hardware support to meet the needs of every student, (2) The level of basic operational ability of students is inconsistent, and (3) lacking the stylization of songwriting teaching.

**Keywords:** songwriting, popular music, music course, music education

## **Introduction and Background**

Practical education is a very important part of political education in China. It emphasizes participation in practice and obtaining knowledge and truth from practice as the main method. Breaking through the limitation of theoretical education and written study encourages students to participate in life, study, and work practice, apply knowledge to practice, and take practice as an important way to verify knowledge and theory. In our country, the National Medium and Long-term Education Reform and Development Plan Outline (2010-2020) states that the students' practical ability and comprehensive quality is more and more brought to

the attention of the country, but China is still putting too much emphasis on textbooks. Training only logical calculation may hinder the all-around development of students, and the constant improvement of the socialist market economy in our country. People can access more and more new things, people's ideas are constantly changing, but there is also an unprecedented diversity stemming from all aspects of the absorption of moral art and cultural knowledge. How to break through the development of quality-oriented education, realize the overall development of students, improve their innovative spirit, practical ability, and comprehensive quality, has become a hot issue that educators are paying attention to. China's state council (Chinese Government, 2022).

As an important part of the cultural field, music has become a part of the professional courses of major music colleges. With the development of professional songwriting courses in colleges and universities, the teaching content is constantly increased, and the setting of songwriting courses can meet the needs of the cultivation of modern music professionals. In the development of music education, music talents should constantly enrich their quality, and songwriting ability is both the key and the basic content which lays a solid foundation for students' writing (Xu & Cao, 2021).

Songwriting, as the main part of the professional curriculum of music colleges and universities, involves the content of composition techniques, which is a compulsory course of music theory study. The teaching goal of the songwriting course is to cultivate musical talents with a strong ability of songwriting and work analysis. In China, universities in different parts of the country have different goals for cultivating musical talents. Parts of college music education is to cultivate the music education of teachers, so at the time of songwriting courses teaching, local university music teachers need to be teaching mode innovation, cultivating students' songwriting ability and practical application of knowledge, cultivating students' creative ability, and highlighting the characteristics of local teaching (Chen, 2016).

### **Research Objective**

To study the current situation of songwriting course in popular music major at Xinghai Conservatory of Music, China

## Literature Review

### Academy of Music composition program

Songwriting is a required course in professional music schools. Since its establishment, this major has provided a large number of literary and artistic talents for society. In recent years, social and cultural activities have flourished, the pop music market has become increasingly active, and the state has also started advocating for the development of cultural undertakings. Both the government and the public have new demands and requirements for culture and art. Songwriting is a compulsory course in the department of pop music, which aims to cultivate students' ability to appreciate and create pop songs. Pop music is different from traditional music, it is fluid, it is popular, it is very complicated (Zhu, 2021).

### Songwriting Course

The Bachelor's degree in songwriting course provides students with opportunities to learn about the writing process from fundamental to advanced level. The beginner course contents include exploring songwriting activities, the music structure, and the stylistic of writing music. The course also teaches music theory, musicianship, and aural skills essential in a good songwriter (The Institute of Contemporary Music Performance, 2022). The fundamental course aims to develop the necessary fundamental music composition and arrangement skills. The students need to develop existing skills in musicianship to build their specialist composition arrangement skills (Leeds Conservatoire, 2022).

The core course of major songwriting consists of different music areas in melody and harmony. The concentrated course of Berklee Online (2022) provides the practical concept for the songwriting curriculum. It includes content in music production, lyric writing, songwriting, music arranging, and commercial perspectives.

## Research Methodology

This qualitative research uses semi-structured interview guidelines to collect data. These themes are designed to understand the current state of the curriculum in songwriting courses and the music teaching practice of song creation. The data were collected through in-depth interviews with 3 music teachers in Xinghai Conservatory of Music. The inclusion criteria of information providers in this study are as follows:

- 1) Must have at least five years of teaching experience in Xinghai Conservatory of Music.
- 2) Have rich experience in song creation and music production and some creative achievements.
- 3) Teaching a course in songwriting or music production.

## Research Findings

### **The teaching status of music composition major at Xinghai University**

Most of the song courses arranged for pop music majors are mainly about theoretical operation. They are based on harmony, form, polyphony, and orchestration, there are also piano, vocal music, music theory, history of Oriental music, history of Western music, folk music, and other courses, forming a relatively reasonable and complete system. After nearly a century of development, many courses have formed fixed teaching systems, and there are quite a few professional books and documents in their respective fields. However, the study of pop music composition, which is completely suitable for China's national conditions, has not been fully developed. Some schools are not very clear in the curriculum requirements, teaching methods and textbooks cannot be unified. Some teachers even turn the classroom into a song salon or creative counseling, ignoring the rigorous basic skills of teaching according to the syllabus.

The teaching content of the composition is generally based on musical form structure, and the teaching design goes from simple to complex. Under the guidance of teachers, students begin to learn writing step by step. Within 4 years, they can gradually master various basic composing skills and finally achieve the ability to write works of various genres and in large musical structures.

The details of music course arrangements and teaching plans in colleges and universities may change according to the specific teaching arrangements each year, but in fact, most of the content will not change. In the existing course arrangement I cited, the content of teaching theory knowledge is very rich, but the creative development of students' practice is lacking. In all the curriculum arrangements, there is no particularly strong experience through listening and basic operation to complete a set of the teaching process.

### **Contents in songwriting courses of the popular singing major**

The songwriting courses of the popular singing major of the Conservatory of Music are as follows.

- Appreciation and analysis of popular songs
- Melodic writing techniques with limited lyrics
- Melodic writing techniques with limitations
- Rhythm in the song (motivation and passages of the song)
- Melodies on chords (motifs and song passages).
- Melodies (motifs and song passages) that vary across chords.
- A melody that contrasts with the bass and phrasal motive
- Composition and construction of song passages
- Writing songs and tutoring in class

The data showed part of the syllabus currently being used by the Conservatory of Music. In fact, the syllabus and teaching settings currently used still need to be improved. Students do not have the same level of accomplishment in literature, keyboard playing, solfeggio, music theory, harmony, and melody. In specific teaching, students should respect the leading role of teachers, complete the teaching plan according to the time and quality, but also give play to the subjective initiative of students, advocate their creative spirit, not only to carry out basic training for students but also to give students appropriate freedom. Of course, the music lecturer cannot make drastic changes to the syllabus and settings of some students. Therefore, as teachers, it often need to constantly adjust the teaching details in the classroom during the teaching process, so that the curriculum is more suitable for each student's learning needs, and strikes a good balance between rigor and freedom, so as to guide and assist students to create their own excellent work.

### **Current situation of songwriting: Problems and Development**

In today's rapidly developing information age, our teaching and learning must keep up with the trend of the times, instead of just pursuing rigid learning in textbooks. Although skills and basic abilities are very important, teachers should also advocate the integration of creation and life as needed and discover new possibilities in our lives. Songwriting teachers may encounter some practical teaching difficulties, but these problems can be gradually solved after being put forward, to better help teachers carry out their teaching work and make more accurate guidance to students.

The following are some of the common problems with current songwriting courses summarized by the researcher:

### **1. Songwriting cannot be implemented with hardware support to meet the needs of every student**

The song creation course, from the point of view of practice, is not only the writing of art creations but the inclusion of the whole creative process of writing and music production. It requires students to understand part of the creation and the music creation in writing. Understanding and learning more about music production helps students consider the actual arrangement and recording needs of songs when writing. However, due to the overwhelming number of students, the school's recording venues and recording equipment cannot meet the specific needs of each student. Even though some classrooms are equipped with the most basic computer facilities, the hardware still cannot meet the needs of teachers. At present, the most usable class space is the ordinary classroom, equipped with relatively simple teaching hardware, no practical music production facilities.

### **2. The level of basic operational ability of students is inconsistent**

Students' individual learning ability and practice of music creation and production ability is different. Some students use informal learning approach to develop their music skills. Some students have a MIDI music production skill, and they can design their own creation of appropriate accompaniment. Even so, they usually have more operational problems when it comes to recording operations. The problem during actual operation is very common and important in the process, in this case, the online students tend to ask the same questions and the teacher need to separate session for each student to explained one-by-one. This situation wasted class time, and there is a lot of content in the process of practical writing is no way to express clearly in simple words. The university should have a learning channel that provides students with on-site equipment so that both teachers and students can gain real knowledge in the process of practice.

### **3. Lacking the stylization of songwriting teaching**

Currently, songwriting courses in some conservatories only require theoretical study in the classroom. These learning contents are relatively routine and stable, which is conducive to popularizing the basic content of song creation. In the future, when students create specific works, there will be many practical problems, and these contents may not be available in the course content, so I think the teaching of this course should be reformed to some extent.

The above issues are some practical teaching problems teachers may encounter in the process of teaching, and the author thinks that to solve these problems, teachers need to change their teaching model to a large extent. I think it is a very good way to combine practical education methods and song creation deeply.

### Conclusions, Discussion and Recommendations

Songwriting is a very important music foundation strength that requires the subjective initiative of a professional; music institutions all can be creators of music, but the labor sector still need musicians who have professional skills to bring us more and more depth in music works. Whether it is songwriting or a professional course, they are a test of teaching and learning for both students and teachers. Our problems may not be completely solved today, but with the development of the times, the music educator should continue to research and practice in this field, committed to finding a more suitable teaching method for contemporary students, and cultivate more excellent musical talents for the country and the world.

Teachers' strict guidance and students' free creation can be carried out successively or according to the specific creative situation (McIntyre, 2008) and integration between the teacher and student are needed so that students can create recognized work while completing basic training tasks (Kardos, 2012). The practical education method has a very long history and profound significance in China's political teaching, but it still need to learn how to put this spiritual core into play in the classroom teaching of professional music learning. A large part of practice teaching with the guidance of the educator only stays written and is not fully implemented in practice. This is the reason there is currently a need to continue to cultivate this aspect of professional music colleges, and music educators as professional teachers, must conduct in-depth studies regarding conscientious practical education.

### References

- Berklee Online. (2022). **Songwriting**. Online.berklee.edu. <https://online.berklee.edu/music-degrees/undergraduate/songwriting>.
- Chen, W. H. (2016). Research and practice on the professional comprehensive reform of music education in local colleges based on the actual social needs. **Art Education**, (01), 252-253.

- Chinese Government. (2022). **Xi Jinping delivered an important speech at the opening ceremony of the training course for young and middle-aged cadres at the Central Party School (National School of Administration)**. [http://www.gov.cn/xinwen/2022-03/01/content\\_5676282.htm](http://www.gov.cn/xinwen/2022-03/01/content_5676282.htm).
- Kardos, L. (2012). How music technology can make sound and music worlds accessible to student composers in Further Education colleges. **British Journal Of Music Education**, 29(2), 143-151. <https://doi.org/10.1017/s0265051712000186>
- Leeds Conservatoire. (2022). **Module Specifications: BA (Hons) Music (All Pathways)**. Leeds Conservatoire. <https://www.leedsconservatoire.ac.uk/courses/undergraduate-study/module-specifications/module-specifications-ba-hons-music-all-pathways/>.
- McIntyre, P. (2008). Creativity and Cultural Production: A Study of Contemporary Western Popular Music Songwriting. **Creativity Research Journal**, 20(1), 40-52. <https://doi.org/10.1080/10400410701841898>
- The Institute of Contemporary Music Performance. (2022). **BA (Hons) Songwriting**. ICMP. <https://www.icmp.ac.uk/course/ba-hons-songwriting>.
- Xu, H., & Cao J. (2021). Music teaching reform under the background of "Double First-class" construction -review of Music Education Research and Practice. **Journal of Chinese Education**, 08, 147.
- Zhu, Y. (2021). Analysis on development Path of Music Composition Theory course teaching in Colleges and Universities. **Overview** (Forum), 2021(09), 157-158.

# THE EFFECT OF COMBINED FEEDBACK ON WRITING ACHIEVEMENT OF UNDERGRADUATE STUDENTS

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## **Abstract**

This study examined the effect of combined feedback on writing achievement of undergraduate students and their attitudes toward the use of combined feedback in writing. Twenty-five students were used as the sample group. The research instruments included the combined feedback instructions, writing achievement test and semi-structured interview. Students' scores were analyzed by using descriptive statistics and t-test. The content analysis was used to analyze the qualitative data from the semi-structured interview. The findings revealed that the participants developed their writing significantly after the intervention. Based on the interview, they had positive perceptions toward the use of both types of feedback to develop their writing skill.

**Keywords:** feedback, writing achievement, university students

## **Introduction**

Writing is recognized as one of the most difficult skills for the learner as it needs appropriate practice and training to be able to produce effective written work. Errors are considered as one of factors for writing development. This is because it is an essential component for learners' language learning process development (Li & He, 2017).

Many studies reveal that providing feedback is very crucial to help learners develop their writing performance and many studies have been conducted on corrective feedback in the recent years (Brown, 2007; Zanjani & Eslami, 2013). Feedback is recognized as one of the main components of the foreign language writing instruction because when learners receive constructive error correction, they understand their strong and weak points of their written work, nurturing their learning process (Zaman and Azad, 2012).

Content-based feedback means any comment emphasizing on whole-text issues of language learning: concepts or content, vocabulary, genre and register, argument, clarity of purpose and coherence in productive skills (Olson & Ratteld, 1987 as cited in Shobeiry, 2021). Previous studies showed the positive impact of content-based feedbacks over form-based feedbacks on motivation and essay writing skill of students (Rojab, 2017; Farrah, Zahida, & Zaru, 2014).

Corrective feedback refers to methods of teachers' responses to students by describing the writing issues that do not appropriate or accurate in the target language (Li & Vuono, 2019). Based on the literature review, there are two kinds of written corrective feedback that are direct and indirect written corrective feedback. Direct written corrective feedback refers to when the teachers see the errors produced by learners, they directly explains the learners with correct form of these errors (Bostanci & Sengul, 2018). Direct corrective feedback is useful for developing writing and learning competence (Sheen, 2007; Alroe, 2011; Guo & Barrot, 2019). According to Al-Jarrah (2016), one of drawbacks of direct corrective feedback is that it may not good for long-term learning for students. When students know where the errors are and how to correct them, the cognitive effort may not be encouraged to process the correct answer. That is to say, it doesn't motivate students to learn some grammatical aspects in the target language.

For indirect corrective feedback, no explicit corrections are provided to the students, they give only clues or codes such as underlining, circling the errors (Eslami, 2014). According to Elashri (2013), there are two kinds of indirect corrective feedback. First, coded indirect feedback is provided to learners by underlining the error and marks the symbol on that error. The second one is uncoded indirect feedback. It is provided to learners only with underlining or circling the error (no symbols identifying the kinds of error). This will help stimulate the learners to fix errors on their own.

Previous studies have revealed positive impact and student's perceptions of indirect corrective feedback to help improve students' language and writing abilities. Based on these studies, students who received indirect corrective feedback performed significantly better in essay writing than those who received direct corrective feedback (Lizotte, 2001; Moser & Jasmine, 2010; Alhumidi & Uba 2016). However, some researchers revealed that poor writers may not possibly point out and fix errors eventhough they were provided with error location (Srichanyachon, 2012).

The problem of the present study is the low level of English writing proficiency of students at Thaksin University. Based on the data of non-English majored students, the data reveals that most of them are struggling writers with poor grades in English writing. As a result, they tend to exhibit negative views toward writing tests and writing instruction and low effort and English writing motivation in classroom. Thus, this research aimed to use combined feedback instructions to improve university students' English writing performance. With this regard, this study was designed to address the research objectives as detailed below.

### **Objectives of the Study**

The two purposes of this study are:

1. To study the effect of combined feedback on students' academic writing achievement
2. To explore students' attitudes toward the use of combined feedback on English writing

### **Research Methodology**

#### ***Research design***

A one group pretest-posttest design was conducted in this study to investigate the effect of the use of combined feedback on students' English writing achievement. This study proposed that an independent variable was the combined feedback. The dependent variables were students' writing achievement and their attitudes toward the use of combined feedback on writing.

#### ***Population and Sample***

The population in this study was 300 first-year students from the Faculty of Humanities and Social Sciences, Faculty of Law and Faculty of Education at Thaksin University. They enrolled in the course of "Read and Write in Basic English" in the second semester of academic year 2020. The Convenience sampling was employed in this study. Twenty-five students were selected as a sample group in this study. For homogeneous grouping in terms of academic achievement, the only participants who were in the upper-intermediate level after taking the English placement test and received grades of A or B+ in EN0000121 course (General English I) in the previous semester were chosen.

### ***Research Instrument***

The three instruments of this study were combined feedback instructions, essay writing achievement tests and semi-structure interview.

#### ***Combined feedback instructions***

The combined feedback instructions were adapted from El-Sakka (2017). The constructed model was checked by three experts and revised based on their suggestions. The pilot study was administered with 20 first-year students majoring in English at Thaksin University.

The four participants were later interviewed for their feedback in order to improve the instructions prior to the intervention of the study.

In this study, the participants were required to write three drafts in order to receive feedback from the lecturer, and the fourth draft was to submit to the lecturer. In the first draft, the content-based feedback focusing on content, organization, and development of essay writing was provided to them through writing comments. The use of lecturer written feedback helped the participants to recheck on global writing issues in the first draft. For the second draft, the students received uncoded corrective feedback. The lecturer only circled the mistakes without explanation for grammatical errors. In the third draft, the participants received the coded feedback: circled words with error correction using symbols. Then, the final draft was submitted for overall writing evaluation.

#### ***The pretest and posttest of essay writing achievement and scoring rubric***

The participants were required to write an essay of around 200 words based on the topic "Causes and effects of climate change." Each student must write an essay before and after the implementation of the intervention. They were allowed for two hours to complete the essay in the pretest and posttest. All essays were evaluated using the analytic scoring rubric for writing evaluation adapted from the Michigan Writing Assessment Scoring Guide (2020). There were five parts: cohesion and organization, task completion, mechanics, grammatical accuracy, and vocabulary to evaluate the written essay. Ten marks were full scores for each section, and the total score was 50 marks.

An essay writing test was designed and checked by three experts in the fields. The participants were given two hours to finish each essay at the pretest and posttest. For inter-rater reliability, the Spearman's rank correlation coefficient was

conducted after two raters rated students' writing tests. The inter-rater reliability for the pretest was .933. For the posttest, the value of reliability was .912.

### ***Semi-Structured Interview Questions***

The question items were checked by three experts and some revisions were suggested by them. For example, "What do you think about the combined feedback?" or "Which types of feedback do you prefer to receive in the future?". The interviews were conducted with four female volunteers after the use of combined feedback regarding participants' perceptions toward the feedback intervention and preferences for feedback types. The interview was conducted in Thai and took half an hour for each participant. The responses were audio-recorded and analyzed using content analysis.

### **Data Collection**

The students were required to take the pretest by writing an essay of 200 words. Each participant was assigned four writing tasks for the whole semester. Four types of essay writing were classification, problem and solution, descriptive, cause and effect essays. Then they received the combined feedback. In the first draft, the content-based feedback for content, organization and development of the essay writing was provided to them through writing comments. Then, participants took part in the discussion with the instructor to clarify on any questions regarding the feedback. For the second draft, the students received uncoded corrective feedback focusing on local changes. The lecturer only circled the mistakes without explanation for grammatical errors. In the third draft, the participants received the coded feedback for form-based changes: circled words with error correction using symbols. The code sheet was explained and distributed to the participants prior to returning the third draft to them. Then, they can ask questions while checking codes and looking at the feedback. The final draft was submitted to the lecturer for overall writing evaluation. At the end of the semester, the students took the posttest on essay writing. Finally, four students voluntarily took part in the individual interviews to check their views toward the use of the combined feedback to develop their writing skill.

### **Data Analysis**

The writing rubric was used to score the students' writing. The students' English writing achievement was examined using four essay writing tasks. Each writing

task was scored by two raters. The average score from both raters was analyzed in each writing task. Students' scores from four writing tasks were analyzed by using t-test for dependent samples. The content analysis was used to transcribe and analyze the qualitative data from the semi-structured interviews of four students.

## Research Results

### *Background information of the participants*

The participants were first-year undergraduate students. Most of them were 18 years of age, comprising 17 participants (80.95%). However, four of them (19.04%) aged 17 years and the last four participants were 19-21 years of age. Eighteen participants studied English for 12-13 years. Seven students studied English for 14-15 years. In terms of English writing competency, fifteen students viewed themselves as low level, nine of them reported that they had the moderate level, and only one of them had high level of English writing competency.

### *Findings and discussion of research questions*

#### *Writing Achievement Results*

Table 1 and 2 presented the writing achievement between the pretest and posttest after the intervention.

**Table 1** The comparison result of the pretest and posttest

Tests	X	SD	t	P
Pretest	24.70	1.98	19.517	.000
Posttest	33.96	3.21		

Table 1 showed that the result was lower than .01. The mean score of the pretest was 24.70 and the standard deviation (S.D.) was at 1.98; the mean score increased to 33.96 and standard deviation (S.D.) reached 3.21 for the posttest. It can be inferred that after the intervention, there was statistically significant difference between the pretest and posttest.

**Table 2** Result between the pretest and posttest based on each component of evaluation

Components of Evaluation	Tests	X	S.D.	t	P
Cohesion and Organization	Pretest	5.70	0.76	15.852	.000
	Posttest	7.18			
Task completion	Pretest	4.60	0.52	17.819	.000
	Posttest	6.72			
Mechanics	Pretest	4.95	0.61	17.437	.000
	Posttest	7.07			
Grammatical accuracy	Pretest	4.65	0.41	17.956	.000
	Posttest	6.78			
Vocabulary	Pretest	4.85	0.58	14.521	.000
	Posttest	6.21			

After the intervention, the highest mean score (7.18) was in cohesion and organization part. The lowest mean score was 6.21 for the vocabulary component. The result revealed that the students' overall writing score including each aspect of essay component scores improved. This can be inferred that after the intervention of combined corective feedback, participants' writing performance improved when compared between the pretest and posttest.

#### *The results of the students' attitudes toward the use of the combined feedback to develop their writing skill*

Regarding the interview data, the combined feedback was useful. The participants gained more understanding on the writing process, as this experience has differed from what they had been taught about writing before.

They were all agreed that they liked this method, especially during the lecturer and participants' meeting. The meeting encouraged the participants to gain more understanding of the writing content. For some of low competent participants, they viewed themselves as weak in grammar, so they felt pressured and worried to receive the low marks from each writing assignment.

## Discussions and Conclusion of the Findings

### *Research Question 1*

For the first question, the results revealed that the writing achievement was statistical significance at .01 level. The results of this study are consistent with the studies conducted by Yamalee (2019) and Van Beunigen, De Jong & Kuiken (2012). It can be explained that the participants must plan and revise their written work for

their errors according to the lecturer's written feedback, so that they have to carefully reread their own writing, leading to the improvement of their written work.

Another explanation might be that there were two types of feedback that the participants received. Then, they had to detect and analyze errors, revise and edit their drafts and re-submit their revised essays, helping to improve their writing quality. For the students, they are more active in revising and improving their writing tasks after they receive both feedback in the three drafts.

### ***Research Question 2***

Based on the result of the semi-structured interviews on the their attitudes toward the intervention, the students had the positive view of their lecturer's feedback, as they considered her as a person who could explain and provide feedback on their writing. The result also reveals that the students just perceived that grammar was not the whole thing that they must pay attention to, but the process of writing was very helpful when the content-based feedback was received. Students were willing to receive the lecturer's content comments, even though some of them said that they were worried after seeing the lecturer's written feedback on the first draft.

In terms of correcting grammatical errors, all of them viewed that it was useful when they received written indirect corrective feedback with codes to revise their errors.

In addition, the student interviewees recognize the way that the lecturer implemented indirect corrective feedback with codes as a challenge due to the problem of solving nature. At the beginning, they seem to be frustrated because they are not sure whether the correction of an error is really the right one or not. For example, S1 mentioned that:

*"In the first time, I don't really like this type of feedback. It is difficult for me to know whether this tense is correct or not.*

Eventhough the indirect corrective feedback is not preferred by most students at the beginning, later their attitudes have changed as they see the positive sides of the indirect corrective feedback. They are encouraged to be more active and put more effort to find out the correct answers. For instance, S4 explained that:

*“I know what is incorrect because I have to put more effort to find out what is incorrect.”*

Regarding the types of feedback they would like to receive in the future, two of the students (50%) agreed on the content-based feedback. This might be because of their learning preferences. But another two students (50%) preferred to receive coded indirect feedback, as they would like to understand more of which types of grammatical aspects they need to improve. As S3 stated that:

*“When I understand which grammatical errors I have, I can improve them.”*

To conclude, it may be inferred from the findings that the participants improve their essay writing with the help of the lecturer's written content-based feedback and indirect corrective feedback. Both types of feedback perceived by students finally show positive views and feedback, as the feedback can strengthen their motivation.

### **Limitations and Recommendations for further studies**

No control group was included in this study for result comparison and the sample size of the study was only twenty-five which was small. Thus, the use of control group and large numbers of students are more reliable for the quantitative data collection. In addition, future research can use data triangulation through the use of questionnaire to gain information of learners' perspectives regarding each type of corrective feedback. Another research might be conducted on other variables such as individual differences in terms of the motivation or the performance of the students in the corrective feedback process. This study is conducted in the south of Thailand. Therefore, the results might be different in other settings. The findings should not be generalized to the whole population in Thailand. Finally, the lecturer acted as the researcher in this study. Therefore, it might have affected the participants' responses in the interviews.

The limitations should be taken into consideration if the findings from this study are to be used in other contexts.

## References

- Alhumidi, H. A., & Uba, S. Y. (2016). The Effect of Indirect Written Corrective Feedback to Arabic Language Intermediate Students' in Kuwait. **European Scientific Journal**, 12(28), 361-374.
- Al-Jarrah, R. S. (2016). A suggested model of corrective feedback provision. **Ampersand**, 3, 98-107.
- Alroe, M. J. (2011). Error correction of L2 students' texts – Theory, evidence and pedagogy. **Asian EFL Journal**, 50, 35-73.
- Bostanci, H. B., & Sengul, F. (2018). Who is the most effective agent when giving indirect written corrective feedback? **Eurasian Journal of Educational Research**, 76, 73-92.
- Brown, D. H. (2007). **Principles of language learning and teaching** (5th ed.). NY: Pearson Educations, Inc.
- El-Sakka, S. M. F., & Seiffedin, A. H. (2017). The impact of direct-indirect corrective e-feedback on EFL students' writing accuracy. **Theory and Practice in Language Studies**, 7(3), 166-175.
- Elashri, I. (2013). **The impact of the direct teacher feedback strategy on the EFL secondary stage students' writing performance**. (Doctoral dissertation, Faculty of Education, Mansoura University).
- Eslami, E. (2014). The effects of direct and indirect corrective feedback techniques on EFL students' writing. **Social and Behavioral Sciences**, 98, 445-452.
- Farrah, M., Zahida, R., & Zaru, N. (2014). The Impact of Three Types of Written Feedback on the Motivation and Writing Skill of English Major Students at Hebron University. **An-Najah University Journal for Research (Humanities)**, 28, 1275- 1297.
- Guo, Q., & Barrot, J. S. (2019). Effects of metalinguistic explanation and direct correction on EFL learners' linguistic accuracy. **Read. Writ. Q.** 35, 261–276.
- Kadkhodaei, N., Gorjian, B., & Pazhakh, A. (2013). The role of reformulation tasks in EFL learners' writing accuracy. **International Journal of Language Learning and Applied Linguistics World (IJLLALW)**, 4(4), 269-282.
- Li, H., & He, Q. (2017). Chinese secondary EFL learners' and teachers' preferences for types of written corrective feedback. **English Language Teaching**, 10(3), 63-73.
- Li, S., & Vuono, A. (2019). Twenty-five years of research on oral and written corrective feedback in system. **System**, 84, 93–109.

- Lizotte, R. (2001). Quantifying progress in an ESL writing class. *MATSOL Currents*, 27(1), 7-17.
- Michigan Writing Assessment Scoring Guide. (2020). *The Michigan English Test (MET)*. Retrieved from <https://michiganassessment.org/michigan-tests/met/met-details/>
- Moser, M., & Jasmine, J. (2010). **Using peer feedback with high school students to improve the use of analogies and symbolism within creative writing.** (Unpublished Master Thesis, Caldwell College).
- Rojab, R., Bambang, C., & Utami, W. (2017). The Effect of Meaning-focused Feedback as well as Language-focused Feedback in the Journal Writing on Indonesian EFL Students' writing Ability. *International Journal of English and Education*, 6(4), 2278-4012.
- Sheen, Y. (2007). The effect of focused written corrective feedback and language aptitude on ESL learners' acquisition of articles. *TESOL Quarterly*, 41, 255–283.
- Srichanyachon, N. (2012). Teacher written feedback for L2 learners' writing development. *Silpakorn University Journal of Social Sciences, Humanities, and Arts*, 12(1), 7-17.
- Van Beuningen, C., De Jong, N. H., & Kuiken, F. (2012). Evidence on the effectiveness of comprehensive error correction in second language writing. *Language Learning*, 62(1), 1-41.
- Wahyuni, S. (2017). The effect of different feedback on writing quality of college students with different cognitive styles. *Dinamika Ilmu*, 17(1), 39-58.
- Yamalee, E. (2019). **Effects of integrated feedback on academic writing achievement and writing anxiety.** (Doctoral dissertation, Thammasat University).
- Zanjan A. M., & Eslami I. E. (2013). The effects of written corrective feedback techniques on EFL students' control over grammatical construction of their written English. *Theory and Practice in Language Studies*, 3(7), 1250-1257.

## THE EFFICIENCY OF NUENDO HANDBOOK FOR MULTIMEDIA SOUND CREATION

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### Abstract

This article came from experimental research in Nuendo handbook for multimedia sound creation. Nuendo was invented and produced by Steinberg media Technologies, a company that produces audio and music software. Working in advanced audio, video and cinematography since 1984 A.D, Steinberg is now one of the world's largest producers of music, audio software and hardware with millions of users worldwide. At present Nuendo is very popular and there is still lack of handbook in Thai language for students or users can read and understand. The contents in The Nuendo handbook for multimedia sound was explains how to use and settings a various function in Nuendo, including to audio editing, How use Effects, Exporting video files after the complete process.

The purpose of The efficiency of Nuendo handbook for multimedia sound creation were 1) To create The Nuendo handbook for multimedia sound creation and using the 80/80 criteria. 2) To compare the student achievement of Nuendo handbook for multimedia sound creation. The Nuendo handbook for multimedia sound creation researchers was asked 3 expertise to evaluate for IOC which the researcher set a threshold of not less than 0.8, The result was 0.9 passed the criteria set by the researcher. After using with experimental group of 8 students from 3rd level student of the Faculty of Music Bangkokthonburi University who studied in the Studio Practice class, can summarize the results as follows: 1) The Nuendo handbook for multimedia sound creation has an efficiency value of 82.61/82.51, which was higher than the specified threshold of 80/80. 2) The students have better achievement. By comparing the scores before study were 31.51 and after study were 82.51 and when comparing, it was found that the score after school was significantly higher than before study at 0.05

**Keywords:** Sound Creation, Multimedia, Nuendo

## Introduction

If we talking about sound engineering in the modern era, the development of technology is rapidly changing and more efficiency. All kinds of media can be distributed quickly through the online world or what we known as the Internet. By being able to work through only one personal computer. It's can create a media. Sound can be recorded through a digital process. Everything can be processed and displayed on a computer monitor. Everything can be operated by keyboard and mouse (Knoebl, 2018). Media in the information age in digital form can be regarded as a catalyst for change and have efficiency in perception and dissemination. Multimedia can be disseminated in text, audio, and video formats, which influences our daily life greatly (Rahman, 2008). Sound is a very important part of multimedia, Holman(2010) said whether it is a media work in a movie or media broadcast on television. It all comes from the experience of listening. Because sound can lead a stories to listeners. Whether direct or indirect stories are conveyed to support the story.

In the era of digital technology, users have many options to choose for create media. Whether it is working with the system of MacOS or Windows, users can create Midi, record sound, create music notes. including sound decoration and sound mixing. Nuendo is one of the software that can be used to create sound effects. Collins (2004) said Nuendo is a program developed by the Steinberg company. It was first used in 2000, It is highly regarded in the creation of surround sound systems. Nuendo competes heavily with Pro Tools, but Nuendo has more advantages than Pro Tools for creating and producing music in Midi system because Nuendo's operation is easier and more convenient as it can be used independently of the connected device. The ASIO Driver can be used. In contrast to the Pro Tools that requires a forced interface only.

Steinberg media Technologies is a professional audio and music software company. Working in advanced audio, video and cinematography since 1984, Steinberg is now one of the world's largest producers of music and audio software and hardware with millions of users worldwide. The Steinberg portfolio has long been recognized for working in modern digital audio. In 2000 Steinberg released the first Nuendo program. This is a breakthrough in the professional workstation (DAW) software market. by introducing new work It is characterized by flexibility in use. This includes the ability to work in surround sound (Steinberg: Online).

A handbook is a book or document created to collect both theoretical and practical content. Has details on how to do for knowledge, understanding and guiding to practice of any matter. Which has explanations and solutions which are detailed, easy to learn, can be studied by yourself, with pictures and charts. In order to attract attention and make it easier to understand(Wannaree Pansiri, 2014)

From the foregoing, the researcher saw that the sound of multi media is very important. Because the sound can indicate the nature, identity the media. In addition to the modern era, the use of media to publish in online is very much. People who are interested in the field of sound want to studies and create their own works. For the most part of audio handbook or textbooks are quite scientific and specialized. In addition, few documents and textbooks are published in Thai language. Therefore, it is difficult for those who want to learn how to use Nuendo. Therefore, the researchers created a Nuendo handbook for multimedia sound creation. And Nuendo handbook for multimedia sound creation was evaluated ioc by three specialist who teach in university, and the result of Nuendo handbook for multimedia sound creation with was 0 .9 it's can be acceptable. Therefore researcher wanted to experiment to find The efficiency of Nuendo handbook for multimedia sound creation. In order to be efficient and useful for people who are interested in using Nuendo as well.

### **Objectives**

1. To create The Nuendo handbook for multimedia sound creation and using the 80/80 criteria.
2. To compare the student achievement of Nuendo handbook for multimedia sound creation.

### **Literature Review**

#### **Nuendo**

Nuendo was invented and produced by Steinberg media Technologies, a company that produces audio and music software. Working in advanced audio, video and cinematography since 1984 A.D, Steinberg is now one of the world's largest producers of music and audio software and hardware with millions of users worldwide. The Steinberg portfolio has long been recognized for working in modern digital audio. This makes Steinberg a backbone for facilitating professionals in the

field of songwriting and audio production. sound design including making soundtracks and in 2000 Steinberg released the first Nuendo. This is a breakthrough in the professional workstation software market. By introducing new way to work It is characterized by flexibility in use. This includes the ability to work in surround sound. Nuendo continues to lead the market. by adding new features There are updates to offer. This ensures excellent sound quality is achieved. And rest assured that Nuendo remains a high-end platform for professionals who want to deliver the best possible sound. Additionally, Nuendo has been developed exclusively by a team of audio experts. This team has the skills and experience to put the best and most efficient tools at their fingertips. The team of product planners are professional with years of experience and are closely related to the audio industry and are constantly on the lookout for future development trends. Planners and developers also work with Nuendo users to try out new features. and provide information to ensure that all new features are implemented according to user requirements (Steinberg: Online).

### **Sound Recording**

Sound recording is the recording of a representative of a sound wave by electrical or mechanical means and the reconstruction of sound waves, such as speech, singing, musical instruments and other sound effects. There are two types of audio recording technologies available today 1. Analog recording 2. Digital recording digital recording.

1. Analog recording is the result of a microphone's small diaphragm capable of capturing changes in air pressure. Acoustic sound waves and record them as if writing a portrait of sound waves. Such as a plate or phonograph, which uses a recording pin that loops through the grooves of the phonograph. In recording with magnetic tape (Magnetic tape), sound waves vibrate the diaphragm of the microphone and are transformed into an electric current that fluctuates. For create sound waves for us to hear. Sound waves can be created using electronic methods. and can record directly from some devices such as Electric guitar pickup or synthesizer without using acoustics in the recording process.

2. Digital recording is the conversion of analog audio signals coming from a microphone. Other origins to a digital format with the numerical calculation process makes it possible to record and transmit with a wide variety of media and high efficiency. Digital recording stores audio data with a set of binary numbers. (Code

series 1 and 0) to represent random samples of the amplitude of the audio at the same time of sound. at the sampling rate(Huber, D. M., & Runstein, R. E., 2010).

### **Handbook**

A handbook is a type of reference book. that gathers information, facts, specifics to be used as a guide to answering questions on a particular subject quickly or to be used as a manual in studying and performing a task. Manuals are often systematically organized to facilitate the user's access to information.

Wanree Pansiri (2014) said that handbook refers to a book or document created to collect both theoretical and practical content and has details on how to perform activities related to that activity for knowledge. Understanding and guiding the practice of any matter which has explanations and solutions which are detailed, easy to learn, can be studied by yourself, with pictures and charts to attract attention and make it easier to understand.

Eakwut Kraimak (referred to Krisada Duangtilee, 2017) explains about the good nature of the manual is to keep the following in mind. is to use language that is clear and easy to understand. Contemplate the problem clearly and penetratingly. for users to use the manual as well. Handbook should be designed to be attractive to read, with pictures or cartoons to make it interesting. If it's a book, the cover should be beautiful and durable. The cover page is written clearly.

Yuparat Wangyaichim (referred to Wanree Pansiri, 2014) has proposed guidelines for developing the manual as follows:

1. Study the basic information to analyze the content and the format of the manual.
2. Analyze the characteristics of the manual.
3. Determine the objectives, scope, content and concept of knowledge.
4. Explore the details and determine the point of knowledge.
5. Write the contents of the tool for a qualified person to check for suitability.
6. Designing the characteristics of a booklet, illustration and printing according to the production process for experiment.

### **Gestalt's Theory**

Gestalt learning theory Born from a German psychologist since 1912, with the group's leader is Wertheimer, Kohler, Koffka and Lewin. that learning comes from experiences scattered places to come together first and then consider the next subsection.

Perception is an interpretation of touch with the five sense organs: ear, eye, nose, tongue and skin. Visual perception is approximately 75% of total perception. Therefore, Gestalts organize their perceptions by division. There are 5 rules known as the Law of Organization.

1. The law of clarity because learners have different experiences. To achieve the same learning no matter what the previous experience. Good learning requires clarity and certainty.

2. The law of similarity is the principle of perception of similarities. in order to know that they can be grouped into the same thing.

3. The law of intimacy It is said that if anything or any situation is intimate learners tend to perceive it as one. or in the same category.

4. The law of continuity is stimulus with the same direction. Learners will recognize that they are one and the same.

5. The law of Closer when Missing stimulus learners will be able to perceive it completely based on previous experience.

## **Research Methodology**

### **Population and sample**

The population in this research is 26 students from 3 rd year student of Faculty of Music Bangkok Thonburi University.

The Sample in this research is 8 students from 3rd year student of the Faculty of Music. Bangkok Thonburi University who studied in the Studio Practice class.

### **Research instrument**

1. Nuendo handbook for multimedia sound creation It consists of a total of 7 lessons as follows:

Chapter 1 New project and meaning of tools

Chapter 2 Import and Export

Chapter 3 How to use loop from Nuendo

Chapter 4 MIDI

Chapter 5 Recording

Chapter 6 Editing and mixing

Chapter 7 Sound Creating for video

2. Assessment form for during study.

3. Assessment form for before and after study.

### **The Nuendo handbook for multimedia sound creation making process**

1. Study the meaning and theory of using Nuendo from documents, textbooks, including theses and related research.
2. Study the details and procedures of using Nuendo.
3. Developed Nuendo handbook for multimedia sound creation. It consists of 7 lessons.
4. Create an Index of Item-Objective Congruence assessment form.
5. Three specialist evaluated The Nuendo handbook for multimedia sound creation.
6. The result of The Nuendo handbook for multimedia sound creation was 0.9 it's can be acceptable.

#### **Data collection**

1. Students take a pretest before studying The Nuendo handbook for multimedia sound creation.
2. The researcher provided students with a The Nuendo handbook for multimedia sound creation. In each class, the researcher guides and teaches the material in The Nuendo handbook for multimedia sound creation and give homework to students
3. At the end of each Chapter, students take an exam during class. The researcher will be the assessor in the class.
4. When finish all chapters students take the exam after class. The researcher will be the assessor in the classroom.
5. Summarize the information and discuss the results.

#### **Data analysis**

1. The researcher used the data obtained from this research to analyze. The efficiency of The Nuendo handbook for multimedia sound creation was set at 80/80 based on the mean percentage. which is calculated from computer software.
2. Comparison of learning achievement between before study and after study from The Nuendo handbook for multimedia sound creation by calculating the t-test which is calculated from computer software.

#### **Results**

After the researcher has brought The Nuendo handbook for multimedia sound creation to experiment with the sample group, can summarized as follows:

1. The efficiency of Nuendo handbook for multimedia sound creation

In this research, the researcher finding the first 80(E1) from the evaluation of students' learning during their studies, using all 3 exams for evaluate, finding second 80(E2) from the evaluation of students' learning after study.

**Table 1** The results of the evaluation of during study

Student	First Exam (full score = 25)	Second Exam (full score = 25)	Third Exam (full score = 25)	Average score (full score = 25)	Percentage
1	20	20	20	20	80
2	25	25	23	24.33	97.32
3	20	19	18	19	76.00
4	20	22	20	20.66	82.64
5	22	22	23	22.33	89.32
6	18	18	18	18	72.00
7	18	20	20	19.33	77.32
8	20	21	21	20.66	82.64
Average	20.38	20.86	20.38	20.54	82.16

From table 1 as summarize the average score of students during their studies was 20.54 from 25 and the percentage was 82.16%. The student with the highest score was the 2nd student who was assessed at 24.33 from 25 and the percentage was 97.32%. The student who got the lowest score was the 6th student who was assessed at 18 and the percentage was 72.00%.

**Table 2** The results from the evaluation of after study

Student	Assessment after study (Full score = 75)	Percentage
1	68	90.66
2	75	100
3	62	82.66
4	55	73.33
5	65	86.66
6	44	58.66

Student	Assessment after study (Full score = 75)	Percentage
7	56	74.66
8	70	93.33
Average	61.88	82.51

From table 2 as summarize the average score of students after study assessment was 61.88 from 75 and the percentage was 82.51%. The student with the highest score was the 2nd student who was assessed at 75 from 75 and the percentage was 100%. Student who got the lowest score was the 6th student who was assessed 44 points and the percentage was 58.66%.

**Table 3** Compare the assessment results during and after study(E1/E2)

Result of	Percentage
During study (E1)	82.61
After study (E2)	82.51

From table 3 as summarize The Nuendo handbook for multimedia sound creation had 82.61/82.51 higher than researcher specified 80/80.

2. Comparison of learning achievement between before study and after study

The researcher compared the students achievement by comparing before study and after study. The research results are as follows:

**Table 4** The results from the before study assessment

Student	Score (Full score = 75)	Percentage
1	32	42.66
2	40	53.33
3	22	29.33
4	24	32.00
5	30	40.00
6	15	20.00
7	15	20.00
8	35	46.66
Average	26.63	35.51

From table 4 as summarize the average score of students before study assessment was 26.63 from 75 and the percentage was 35.51%. The student with the highest score was the 2nd student who was assessed at 40 from 75 and the percentage was 53.33%. Student who got the lowest score was the 6<sup>th</sup> and 7<sup>th</sup> students who was assessed 15 points and the percentage was 20.00%.

**Table 5** Comparison of learning achievement between before study and after study

Result of	Percentage
Before study	35.51
After study	82.51

From table 5 as summarize student had better achievement. By comparison, the percentage of before study assessment result was 35.51% and the after study assessment result was 82.51%.

**Table 6** Comparison of learning achievement between before study and after study by t-test

		Paired Differences						
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig.(2-tailed)	Sig.(1-tailed)
Pair 1	Posttest - Pretest	35.25	4.03	1.42	24.7603	7	0.0000	0.0000

From table 6 as summarize after students use The Nuendo handbook for multimedia sound creation have better achievement. And when comparing, it was found that the score after study was higher than before study with a statistical significance of 0.05.

## Discussions

1. The Nuendo handbook for multimedia sound creation had 82.61/82.51 higher than researcher specified 80/80 because the researcher has studied the content related to the use of Nuendo very well from various documents, textbooks,

especially the study of manuals produced by Steinberg the maker and developer of the Nuendo. The research also conducted a study to find information from the website. [steinberg.net](http://steinberg.net) as well. After the researcher has studied the information and processes of nuendo. Researcher design and arrange content together by emphasizing on placing the elements of the handbook to be consistent and coherent. This makes student have a success learning from easy content to difficult content respectively. Relate with Yuparat Wangyaichim (cited in Wanree Pansiri, 2014) who described the development of a handbook that a good handbook must have studied and researched on the subject that needs to be developed. The format of the handbook has been clearly defined. There is an analysis of the nature of the handbook in what format it should be set objectives. Define the scope of the content of the tool and determine the learning point.

2. Student had better achievement. By comparison, the percentage of before study assessment result was 35.51% and the after study assessment result was 82.51%. And when comparing, it was found that the score after study was higher than before study with a statistical significance of 0.05. Because teaching process that the researcher has used in teaching. There are clear objectives and explanations for each lesson. Including the use of illustrations explaining the steps to do. It's enabling students to know how to practice. Moreover, the content of each lesson is arranged in the correct order, giving learners a continuous experience in practice. through classroom and homework assignments given by the researcher in each lesson. Relate with Gestalt's Theory which describes the organization of perception by saying 1. The law of clarity because learners have different experiences. To achieve the same learning no matter what the previous experience. Good learning requires clarity and certainty. 2. The law of similarity is the principle of perception of similarities. in order to know that they can be grouped into the same thing. 3. The law of intimacy It is said that if anything or any situation is intimate learners tend to perceive it as one. or in the same category. 4. The law of continuity is stimulus with the same direction. Learners will recognize that they are one and the same. 5. The law of Closer when Missing stimulus learners will be able to perceive it completely based on previous experience.

## Suggestions

1. Should be used The Nuendo handbook for multimedia sound creation with other experimental groups.
2. Should to create a handbook for multimedia sound creation with other software.

## References

- Baine, C. (2007). **The Musical Engineer**. USA: Engineering Education Service Center.
- David Miles Huber & Robert E. Runstein. (2010). **Modern Recording Techniques**. Burlington: Focal Press.
- Collins, M. (2004). **Choosing and using audio and music software**. Burlington: Focal Press.
- Harris, B. (2009). **Home Studio Setup**. Burlington: Focal Press.
- Holman, T. (2010). **Sound for Film and Television**. Burlington: Focal Press.
- Holman, T. (2000). **5.1 Surround Sound**. Burlington: Focal Press.
- Huber, D. M., & Runstein, R. E. (2010). **Modern Recording Techniques**. Burlington: Focal Press.
- Krisada Duangtilee. (2017). **Creating Application Manuals on Smartphones and Tablets for Science Teachers**. Junior high school level. Master of Education degree program Department of Educational Technology and Communication. Naresuan University
- Knoebl, L. (2016). **Audio and Visual cues in mixing and mastering**. Master thesis in Institute of electronic music and acoustic Graz. Graz University.
- Langford, S. (2014). **Digital Audio Editing**. Burlington: Focal Press.
- Owsinski, B. (2006). **Mixing Engineer's Hand book**. Boston: Thomson Course Technology PTR.
- Pejrolo, A. (2005). **Creative Sequencing Techniques for Music Production 2<sup>nd</sup> edition**. Burlington: Focal Press.
- Rahman, S. M. (2008). **Multimedia Technologies: Concepts, Methodologies, Tools, and Applications**. USA: IGI Global.
- Narut Suttachit. (1998). **The Psychology of Music Teaching**. Bangkok: Chulalongkorn University Press.
- Senior, M. (2011). **Mixing Secrets for the small studio**. Burlington: Focal Press.
- Steinberg. (2020). **Nuendo**. Retrieved August 9, 2020 from: <https://new.steinberg.net/nuendo>.

- Steinberg. (2020). **Nuendo10 Operation Manual**. Steinberg Media Technologies.
- Teachme-biz. (2019). Learn how to create a manual that makes work more efficient.  
Retrieved 1, 2021 from : <https://teachme-biz.com/blog/manual-gyomu-i/>
- Wanree Pansiri. (2014). **Developing a manual on the use of statistical data analysis for research**. Rajamangala University of Technology Rattanakosin.

## THE GUZHENG BASIC TEACHING FOR SHENYANG NO.7 JUNIOR MIDDLE SCHOOL IN LIAONING PROVINCE, CHINA

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### **Abstract**

This study is "The Guzheng basic teaching for Shenyang No. 7 Junior Middle School in Liaoning province, China". The purpose of this paper is to study the development of guzheng teaching in the Seventh Middle School of Shenyang City, Liaoning Province. This research is qualitative research and study of various documents, using questionnaires and observation. Data were collected through field visits and interviews with three teachers of Guzheng middle school. The results are as follows: 1) through the investigation of three primary schools, it is found that guzheng can be used as a music course in primary schools, and students don't have much time to practice guzheng after class. many schools have gradually set up Chinese national orchestras. students have more opportunities to perform on stage, which is of great help to the development of students. 2) Giving students ensemble lessons in schools has cultivated students' interest and cooperation consciousness. It is a very good trend to develop ensemble classes.

**Keywords:** Guzheng, Music Education, Basic Teaching

### **Introduction**

The guzheng, a Chinese tradition instrument, has existed for about 2500 years, since the period between 770 and 476 BCE. The guzheng gradually became popular during the Qin, Zhao, and Qi states during the Warring States Period (475-221 BCE), and among those it was most popular in the Qin state (Yu song, 2011)

During its long history, the guzheng has played an accompanying role for traditional opera in civil society, but the type of performance that the guzheng manifested was essentially different in various places: either it played in the traditional classical style, or it played folk tunes in the Chinese music ensemble. The

social status of the guzheng caused the role it played in society to change from age to age (Zaisheng, 2006).

Guzheng's teaching methods are relatively traditional. Its scores, phonology, and techniques are all taught by oral heart. Therefore, Guzheng teaching requires students 'musical talent and music acceptance ability. Due to the rapid development of modern society and the uneven level of students 'zither, there are many problems in the teaching of zither because of the lack of understanding of traditional culture. After a detailed summary and discussion, the advantages and disadvantages of traditional zither teaching mainly include the following two points.

1 . Supplementary information on omission and rich teaching content the traditional Chinese zither teaching method can be used up to now, fully illustrates the science and theory of traditional Chinese zither teaching method and has certain advantages in the teaching of traditional Chinese zither. First, the teachings of oral teaching and traditional music creation, music theory and musical notation have mutual attachment and promotion. Secondly, Guzheng teachers can be guided by musical performance during the teaching process, and can be used for demonstration, advice or correction in some performance details such as shaking fingers, chopping strings and strings.

2. Lack of innovation and independent thinking in teaching Traditional Chinese zither teaching method can be used up to now, fully illustrates the science and theory of traditional Chinese zither teaching method, but today, the teaching of oral teaching gradually shows the deficiency in science and culture. First of all , the starting point of oral teaching is to teach the students undefined understanding of the zither to the thought consciousness of the students , but it is difficult to reach a common understanding .Secondly , there is a lack of communication between the Guzheng teachers and students , and many students can achieve a certain level of performance while the technical advice can reach a certain level , but their thinking cognition , aesthetic concept and innovation consciousness are disappointed .

Learning guzheng is difficult and there are various techniques. Because guzheng skills are complicated, beginners will feel boring because of early exercises. The sound is not so beautiful. Many famous tunes are concentrated in the back to learn, and many students easily give up. This is all a learning process. Must be overcome. Learners must find professional teachers. The teacher will help you learn effectively. As a teacher, you need to consider how to increase your child's interest

and inspire them to practice guzheng. It is the responsibility of those engaged in zither teaching and performance to strengthen basic education. Children can cultivate guzheng performances from an early age, which allows us to pass on our traditional culture well.

Some problems were found in the guzheng teaching in schools. In terms of social dynamics, at present, there is a lack of music education in schools. such courses are not implemented, but the basic courses of school music education are growth and development can be, instrumental music and national cultural heritage and national spirit are very important to carry out such a program can promote the development of school music teaching. When many teachers spread the guzheng technique, it will not pass the relevant historical and cultural knowledge to the children. Through surveying, these problems still exist, domestic guzheng education has not yet joined the music education curriculum in Chinese schools. the course is basically in its infancy. Therefore, the development of such music courses

In schools is an important process. Music not only enables them to improve their music literacy and artistic accomplishment but also plays an important role in cultivating rigorous and practical learning attitudes and conscious and hard learning. At the same time, it also exerts a subtle influence on the cultural quality, morality, sentiment, and personality of a person. To improve the ability of music education, they came to class through their musical instruments. Later, through the efforts of professional teachers, some schools gradually carried out such courses. Beethoven said a word: those who comprehend music can be detached from all the troubles of the world. Einstein also said: Without early music education, I will accomplish nothing. Music is now ubiquitous in our lives. This article chooses the learning interest, performance skills, detailed training, and teaching methods of guzheng beginners in Shenyang, Liaoning Province. The contents and exercises of guzheng basic teaching are summarized. The importance of guzheng basic teaching in guzheng teaching is emphasized. The teaching methods and techniques suitable for beginners are solved.

The problem of students, students at the beginning of learning is not understand the instrument, learning interest is lack of patience. It is difficult to master the basic hand shape and fingering of the guzheng. Lack of solid basic music theory knowledge and musical ability, unable to keep up with the progress of collective ensemble. Most of the students rely on the teacher's direct explanation

and guidance, but they don't learn how to learn independently. As teachers, first let them understand what is the guzheng Let's listen to the music about guzheng and sing along with the video. Finally, the teacher explains the score and demonstrates, and the students play.

Liaoning province is one of the places where guzheng is taught. For students in schools who are teaching that are faced with such problems. Liaoning Province is one of the places where guzheng is taught. For students in schools who are teaching that are faced with such problems. From all the reasons mentioned above, the researcher saw that the teaching of guzheng, it is very important. Therefore, interested in studying the said subject by conducting a study in Liaoning

### **Objectives**

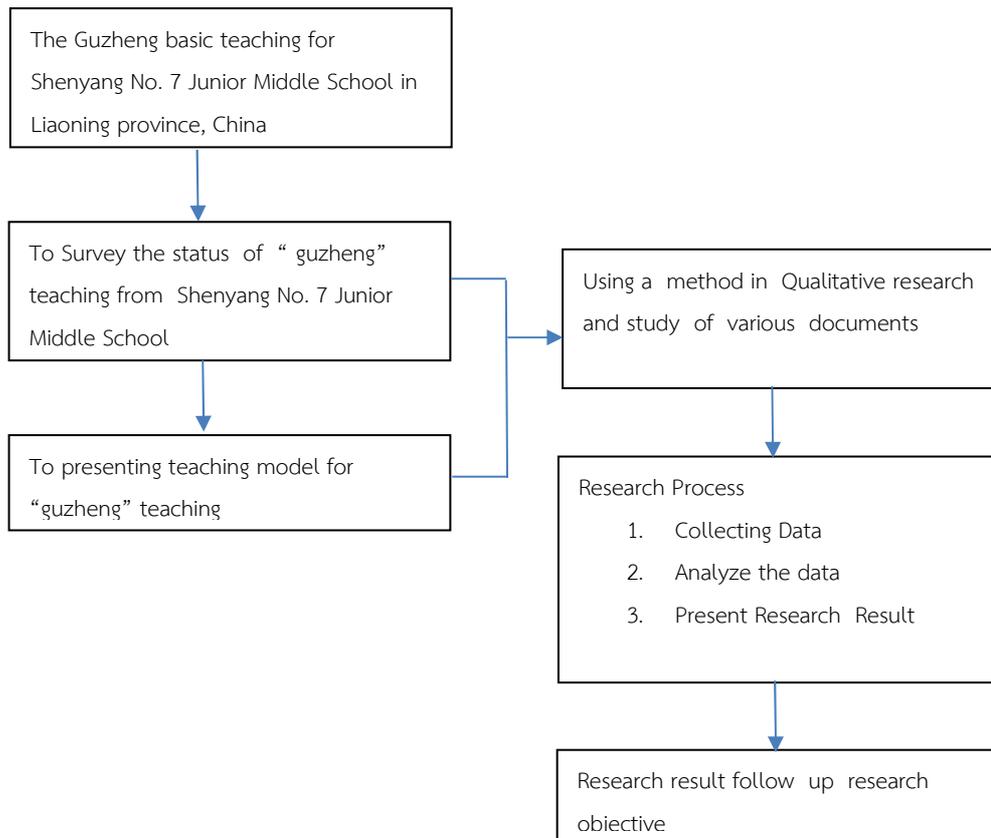
This research objective is to study the development of guzheng teaching in the Seventh Middle School of Shenyang City, Liaoning Province.

### **Literature Review**

In this study the researcher reviewed the relevant documents to obtain the most comprehensive information available to be used in this research. The researcher has reviewed the following topics.

1. Guzheng musical instrument history
2. Basic practice of guzheng
3. Teaching situation of Guzheng in Liaoning Province, China
4. Teaching methods
  - a. Thai music teaching performances
  - b. Western music teaching performances
  - c. Music Education in China
5. How to create teaching plan
6. Guzheng music cultural background
7. Educators Contributions to guzheng
8. Research Site Review
9. Documents and research related

## Conceptual Framework



**Figure 1** Conceptual Framework

## Research Methodology

### Research scope

#### 1. Scope of content

##### 1.1 This research includes:

1.1.1 Surveying the status of “guzheng” teaching from Shenyang No. 7 Junior Middle School

1.1.2 Presenting teaching model for “guzheng” teaching.

#### 2. Area of study

My area is Shenyang city, Liaoning province, China, and place of study is the Shenyang No. 7 Junior Middle School in Liaoning.



**Figure 2** the map of Liaoning province China. Retrieved from ([https://commons.wikimedia.org/wiki/File:Liaoning\\_in\\_China\\_\(%2Ball\\_claims\\_hatched\).svg](https://commons.wikimedia.org/wiki/File:Liaoning_in_China_(%2Ball_claims_hatched).svg))

### 3. Working time frame

(1) November 2020, researcher collected documents on the internet and in the library, analyzes the documents about introduction and problem presentation, and establish the thesis.

(2) From December 2020 to May 2021, researcher collecting data at primary school

(3) From November 2020 to August 2021, researcher studied about the comparison and analysis, and presents my ideas about conclusion, discussion, and suggestion.

### Working processes

#### 1. Preparation

- 1) Records three pieces of teacher collected in this field survey
- 2) Read and summarize books on Chinese Guzheng teaching
- 3) Video includes every field trip, interview, teaching classroom, and selected 50 - 100 pictures from field survey.
- 4) Contact the high school and make a criteria for choosing teacher as follow
  - the teacher who aged over 35 years old
  - the teacher who has teaching over 10 years of experiences

Researcher got three teachers who met with the criteria these were:

1. Zhao Bonan
2. Huang Xin
3. Cong Yang

5) Constructing the questionnaire for interviewing by:

1. Writing questionnaire bases on the objectives
2. Having the adviser check
3. Revising the questionnaire

Then using the questionnaire for field survey

### **Data analysis**

Researcher was managing data when finish the fieldwork and then grouping the data based on objective and analysis by using knowledge learned from literature review

### **Results**

Objective 1 is through the investigation of three primary schools, it is found that guzheng can be used as a music course in primary schools, and students don't have much time to practice guzheng after class. Some parents expect too much from their children, which leads to great pressure on their children. Lost love for musical instruments. However, many teachers are making contributions to guzheng. Because the country vigorously promotes the Chinese culture, and many schools have gradually set up Chinese national orchestras. students have more opportunities to perform on stage, which is of great help to the development of students. Compared with previous years, Chinese folk musical instruments are more and more popular, and many people are willing to spend time studying.

Objective 2 is through investigation; it is found that giving students ensemble lessons in schools has cultivated students' interest and cooperation consciousness. First, distribute necessary music to students, teach basic skills, explain the content, and finally practice. One class a week. Students can study together, and parents can discuss together. It is a very good trend to develop ensemble classes.

### **Advantages and Disadvantages of Traditional Chinese Guzheng Teaching**

Guzheng's teaching methods are relatively traditional. Its scores, phonology, and techniques are all taught by oral heart. Therefore, Guzheng teaching requires students 'musical talent and music acceptance ability. Due to the rapid development

of modern society and the uneven level of students' zither, there are many problems in the teaching of zither because of the lack of understanding of traditional culture. After a detailed summary and discussion, the advantages and disadvantages of traditional zither teaching mainly include the following two points.

1. Supplementary information on omission and rich teaching content. The traditional Chinese zither teaching method can be used up to now, fully illustrates the science and theory of traditional Chinese zither teaching method and has certain advantages in the teaching of traditional Chinese zither. First, the teaching of oral teaching and traditional music creation, music theory and musical notation have mutual attachment and promotion. Secondly, Guzheng teachers can be guided by musical performance during the teaching process, and can be used for demonstration , advice or correction in some performance details such as shaking fingers, chopping strings and strings .

2. Lack of innovation and independent thinking in teaching. Traditional Chinese zither teaching method can be used up to now, fully illustrates the science and theory of traditional Chinese zither teaching method, but today, the teaching of oral teaching gradually shows the deficiency in science and culture. First of all, the starting point of oral teaching is to teach the students undefined understanding of the zither to the thought consciousness of the students, but it is difficult to reach a common understanding. Secondly, there is a lack of communication between the Guzheng teachers and students, and many students can achieve a certain level of performance while the technical advice can reach a certain level, but their thinking cognition, aesthetic concept and innovation consciousness are disappointed

## Discussions

Objective 1: In the past, the one-by-one teaching was the traditional teaching mode, and targeted training could be carried out according to different students. Many students lose interest when facing difficulties in practicing guzheng. Currently, some students choose to give up. But on the contrary, after the number of students in a class is increased, students will have the motivation to learn and listen to other people's shortcomings to correct themselves, which will also improve the learning efficiency. This is the result of the discussion between the three teachers and researcher. This kind of class method is slowly being popularized.

Objective 2 : Before starting a group lesson, the teacher chooses the right teaching method based on the students' basic skills and individual differences. The group learning class makes students study together and improve their communicative and reflective abilities. This will have a positive impact on their study. It can increase students' interest in musical instruments. At the same time, in the group learning class, students are accompanied by classmates in the learning process, which makes them more interested in the course, and can also drive students with low learning enthusiasm to like music. Teachers can use demonstration and discussion methods to teach. Basic presentation skills and difficult places will be demonstrated, allowing students to imitate the artistic atmosphere of the students. Students can discuss and analyze each other in the learning process to help students learn the guzheng quickly.

### Suggestions

1. In subsequent studies, should study Guzheng in a higher teaching level.
2. The next study should be studied Guzheng in other areas to compare teaching methods.
3. For the next step; it should study a pedagogical method on Guzheng ensemble.

### Reference

- Huang Yu. (2018). **On the inheritance and development of folk music in primary school music education**. Art Science and Technology. 31(05), 286.
- Liang Lijun. (2 0 1 8 ). **Reflections on the teaching reform of colleges and universities**. The Voice of the Yellow River. 518(17), 113.
- Sang Rui. (2 0 1 6 ). **Discussion on the Reform of College Music Performance Teaching from the Perspective of Innovative Talents Cultivation**. Art Science. 29(11), 346-347.
- Wang Xuehong. (2013). **How to better integrate the national music culture into the primary school music classroom**. Music Grand View. 6, 14-15.
- Wang Yinan. (2018). **A brief history of the history of the Silk Road**. Art Review. 571(20), 69-70+144.
- Yang Ping. (2019). **Research on the Application of New System Music Teaching in Primary School Teaching [J]**. Northern Music.

- Yao Li. (2018). **Cultivate the patriotism of primary school students**. New Curriculum Elementary School. 8.
- Yu Rong. (2012). **Analysis of the development of preschool music education in China**. Music Grand View. 1, 105-106.
- Yu Xiaojing. (2007). **Teaching of traditional Thai music culture**. (Doctoral dissertation, Nanjing Normal University).
- Zhang Dongsha. (2017). **Reflections on multimedia teaching in the reform of college teaching**. The Voice of the Yellow River 18(40).
- Zhu Chenghui. (2018). **Analysis of primary school music cooperative learning under the background of new curriculum reform**. Elementary school composition counseling (early) 11.

## THE SECOND-ORDER CONFIRMATORY FACTOR ANALYSIS OF BALANCED SCORECARD IN SMES IN LUANG PRABANG PROVINCE, LAO PDR

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### Abstract

The objectives of this research were to study 1. Compare the differences of balanced scorecard when classified by the size of enterprises; and 2. To analyze the second-order confirmatory factor of balanced scorecard in small and medium enterprises (SMEs) in Luang Prabang Province, Lao PDR. The researchers collected data using a convenient sampling from 300 SMEs entrepreneurs in Luang Prabang Province. The statistics used in the data analysis consisted of percentage, mean, standard deviation, T-test analysis, and second-order confirmatory factor with structural equations.

The results revealed that

1. Balanced scorecard was a statistically significant difference when classified by the size of the enterprise overall and in each aspect.

2. The first confirmatory factor of the balanced scorecard in Luang Prabang SMEs was affected by *internal processes* the most, while the least was *financial*. Regarding the second-order confirmatory factor of the balanced scorecard in SMEs, the key elements are: Your SMEs have been continuously increasing income ( $\lambda_{y11}=0.79$ ), Customers are satisfied with the service and coordination from your SMEs ( $\lambda_{y22}=0.67$ ), The plans of your SMEs are suitable and can be implemented without problems ( $\lambda_{y31}=0.68$ ), The personnel in your organization share knowledge both within the department and between departments ( $\lambda_{y42}=0.75$ ).

**Keywords:** balanced scorecard, SMEs, Lao PDR

### Introduction

After Laos transitioned to a socialist government on December 2, 1975, it faced many problems and obstacles economically, politically, and socially. Nonetheless, with

the help of the socialist countries, especially the Soviet Union and Vietnam, Laos has always taken both countries as a guide for the country's development. Until the Soviet Union switched to the Perestroika policy and Vietnam reformed to the Doi Moi policy, Laos had to adjust its policy to become more self-reliant. As a result, "New Economic Mechanism: NEM) has been adopted since 1986, emphasizing the importance of the price system that follows the market mechanism and more business-focus administration. (Laos PDR 2022)

Lao People's Democratic Republic (Lao PDR) was classified as a developing country, having problems with international trade deficits that increased from US\$313.30 million in 2008 to US\$408.30 million in 2009 (Bank of the Lao PDR, 2010), and the unemployment which is the country's long-standing economy issue. Furthermore, a non-competitive production system, coupled with the lack of a distribution system to the different regions, results in un-nurturing economic and social systems. However, the new economic mechanism incorporated socialism with a more free-market economy. The government has revised rules on trade and investment to promote and support economic expansion, which is the first step for the private sector, SMEs in particular, to have an essential role in the country's economic and social development. (Manycom and Sinchuen, 2012)

Small and medium-sized enterprises (SMEs) have become the most significant number of economic units in every country. With its small size, it is widely spread. SMEs are considered a vital economic driving force of the nation which creates employment in the household sector (Ahmad et al., 2022). Under such economic importance, many admitted that SMEs still have limitations due to the nature of business operations being different from large enterprises. Whereas it is possible to create strategies based on certain competitive advantages, such as starting a business quickly, flexibility in doing business, and the ability to respond to specific market needs. However, there will be obstacles in almost every aspect of business operations due to its small size, from the lack of technology, lack of funding for development and research, inaccessibility of funding sources, and most importantly, the lack of management capability in personnel. As a result, most of them cannot maintain their business in the long term and are unable to move to a higher level of competition. Many enterprises of this level have poor operating results and eventually had to go out of business shortly after starting. One could say the survival

rate of SMEs is not high. In contrast to the problem of controlling results in terms of quantity and quality (Chong, Ong, Abdullah & Choo, 2019).

The Lao PDR economy in 2017's gross domestic product (GDP) at current prices is estimated to be \$9,889 billion. The real economic growth rate was 9.1 percent, an increase from 8.7 percent in 2016. The direct investment in Lao PDR mainly focuses on the natural resource sector. Foreign investment in natural resources accounted for more than 80%, of which the majority of foreign direct investment in Lao PDR came from Thailand, China, Vietnam, South Korea, and France (World Bank, 2015). Thus, Lao PDR aims for the country's economy to expand by focusing on promoting and developing SMEs into modern industries. According to a survey in 2006, the Lao PDR had 126,913 SMEs, representing 99.80% of the total number of businesses all over the country (Lao Statistics Bureau, 2006).

In addition, SMEs are also sources of employment. Moreover, it is crucial to reduce the rural and seasonal unemployment rates among farmers. It is a source of income for the government, such as collecting trade taxes, income tax, various fees, and helping to distribute income to regions. Therefore, the government attaches great importance to developing small and medium-sized businesses to stimulate the country's economy to grow.

Furthermore, it promotes a new generation of entrepreneurs with vision, creativity, risk-taking, and seeking progress. The relationship between government and entrepreneurs plays the role of helping drive the economy in ever-changing environments. Entrepreneurs who manage their business effectively must have sufficient knowledge, abilities, and potential, commit to success, have confidence, have a clear business plan, and have the courage and competence in various fields (Ryan Ray, and Hiduke, 2006).

This study aims to conduct survey research focusing on such enterprises in Luang Prabang Province, which is 1 of 17 provinces in Laos (Not counting the capital, Vientiane). Luang Prabang Province has a transportation advantage because it borders China, has a logistics system developed, and is beautiful as a world heritage city. Such growth has made it easy and attractive to grow SMEs. The survey intends to reflect the strengths and weaknesses of a balanced scorecard in the business and benefit further business development and improvement.

## Objectives

1. Compare the differences in balanced scorecard classified by the size of the enterprise
2. Analyze the second-order confirmatory factor of balanced scorecard in SMEs in Luang Prabang Province, Lao PDR.

## Literature Review

### Balanced Scorecard

The Balanced Scorecard, or BSC, is a tool that helps managers set strategic goals. It is guidelines for achieving the goals' objectives by tracking, monitoring, and controlling strategies and activities to achieve the outcome. The tool links the organization's strategy with the assessment from four aspects: customer, financial, internal process, and growth. BSC is a system or process of management that relies on the defining KPIs (Key Performance Indicators) as a critical mechanism to measure the organization's performance in various areas. Control and evaluation consist of defining what is to be measured depending on the objectives and then defining *performance indicators* as a tool to measure.

The indicators in this concept can be divided into four areas: 1) Financial Perspective, 2) Customer Perspective, 3) Internal Process Perspective, and 4) Learning and Growth Perspective (Kaplan and Norton 1992; Waruhiu 2014). A great range of studies offer views on performance and strategic positioning, personnel, and performance measurements, which are well explicable through the analyses of BSC (Ittner et al., 2003; Banker, Chang, and Pizzini, 2004; Dilla and Steinbert, 2005).

### Small and Medium Enterprises

In defining Small and Medium Businesses (SMEs), there are no standard criteria used to classify whether small and medium-sized businesses depend on the size of the business, characteristics, quality, business success, or type of business. Regardless, the criteria used by different countries to determine the size of a business are generally the type of business, the number of employees, size of authorized capital, size of fixed assets, sales, operation profits, and the number of customers. For Thailand, there is no standard definition of a small and medium-sized business; thus, various public and private agencies have different definitions based on each organization's objectives, typically decided by the size of the fixed asset, the number of employees, size of authorized capital. Nevertheless, in general, the

definition of small and medium-sized businesses covers medium-sized and small enterprises, including mini or micro-enterprises, supporting industries, independent enterprises, or stand-alone enterprises (Office of Small and Medium Enterprises Promotion, 2018).

Vichai Thosuwonchinda (2013) defined *SMEs* as businesses with independent management; managers are usually business owners, investments from private funding, and local operations. The number of employees, investments, assets, and sales are less than those in the same industry. Small and Medium Businesses (SMBs) refer to independent businesses owned by the private sector and operated by the owners themselves. It is not a tool of any business, not under the influence of a person or other business, has low operating costs, and has few employees. Small and Medium Enterprises (SMEs) include manufacturing, wholesale and retail, and services. There are many ways to classify a business as large, medium, or small, but usually use the number of workers (employment size), capital, asset value, sales, or income as criteria.

#### **Definition of SMEs in Lao PDR**

According to the law on the promotion of small and medium enterprises, Lao PDR (National Assembly of the Lao PDR, 2013), small and medium enterprises are business units registered and operated under the law of the Lao PDR. The criteria to determine the size of small and medium enterprises vary by each sector, classified by the average number of workers in a year, total asset value, and total annual income.

The government of Lao PDR has enacted the law on the promotion of small and medium-sized enterprises and set up the policies and standards to cultivate an environment and conditions that facilitate entrepreneurs to establish, operate, and develop small and medium enterprises. The government encourages and promotes the development of *SMEs*, aiming to build competitiveness in the sectors of production of commercial goods, trade, and services sectors. With support for funding, know-how, technology, marketing, scientific research, and more (Bhatiasevi & Naglis, 2020; Boonlua, Waranuntakul & Wongnara, 2015).

#### **The Classification of Small and Medium-sized Enterprises of the Lao PDR**

Classification of small and medium enterprises designated by the average number of workers in a year, total asset value, or total annual income of registered enterprises in each sector; production, trade, and services. The government

determined the categorization of the business in which the Lao PDR divided into micro, small, and medium enterprises.

**Table 1.** The Classification of Small and Medium-sized Enterprises

Enterprise Sector	Average Number of Worker (Person)	Total Asset Value (Million Kip)	Annual Income (Million Kip)
<b>1. Micro Enterprise</b>			
Production	1-5	<100	<400
Trade	1-5	<150	<400
Services	1-5	<200	<400
<b>2. Small Enterprise</b>			
Production	6-50	<1,000	<2,000
Trade	6-50	<1,000	<3,000
Services	6-50	<1,500	<1,500
<b>3. Medium-sized Enterprise</b>			
Production	51-99	<4,000	<4,000
Trade	51-99	<4,000	<6,000
Services	51-99	<6,000	<4,000

Most of the problems with SMEs in the Lao PDR are rooted in personnel, especially entrepreneurs, such as the lack of entrepreneurial spirit, inadequate management skills, and lack of skilled workers. For instance, the lack of skilled labor means that the products produced are of poor quality therefore unable to compete (Lao Statistics Bureau, 2006)

### Research Methodology

This study is quantitative research. The population used is entrepreneurs in small and medium-sized enterprises in Luang Prabang Province, of which the exact population is unknown. The researchers assigned a sample size according to Hair et al. (2010), which suggests 10-50 samples per observed variable. Therefore, the researchers place the ratio at 15:1. Given that this research has 20 observable variables, at least 300 samples are to be gathered. By convenient sampling, 300 data

were in fact collected using an online questionnaire combined with data collection from the field. The instrument was a validated questionnaire for content validity and reliability. The statistics used to analyze the data consisted of percentage, mean, standard deviation, T-test analysis, and second-order confirmatory factor through the Structural Equation Model (SEM) analysis.

## Results

The results demonstrated that the majority of the respondents were female (66.00%), aged 31-40 years (53.67%), were married (49.33%), were in service sector (67.00%), and were in small enterprises (70.33%)

**Table 2.** Comparison of Balanced Scorecard Classified by the Size of the Enterprise

size		N	Mean	SD.	t	sig
Financial (FIN)	Small	211	4.16	0.77	-2.86**	0.00
	Medium	89	4.42	0.57		
Customer Relationship (CR)	Small	211	4.18	0.70	-3.11**	0.00
	Medium	89	4.44	0.55		
Internal Processes (IP)	Small	211	4.24	0.68	-2.27*	0.02
	Medium	89	4.43	0.57		
Education & Growth (EAG)	Small	211	4.11	0.77	-3.26**	0.00
	Medium	89	4.41	0.58		
<b>Balanced Scorecard of SMEs</b>	<b>Small</b>	<b>211</b>	<b>4.17</b>	<b>0.70</b>	<b>-3.01**</b>	<b>0.00</b>
	<b>Medium</b>	<b>89</b>	<b>4.42</b>	<b>0.54</b>		

The results indicated that the balanced scorecards classified by the enterprise's size were statistically significant differences overall and in each aspect.

In order to evaluate the second objective of the research, the researchers analyzed the second-order confirmatory factor of the balanced scorecard of SMEs in Lao PDR using the Structural Equation Model (SEM). The results are as follows.

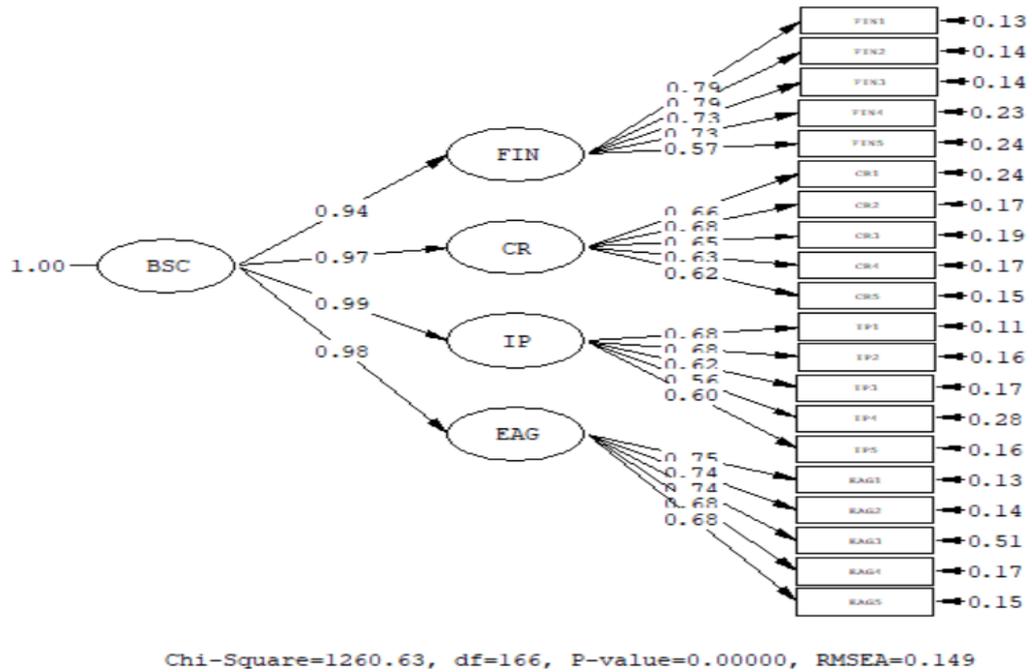


Figure 1. Second-order confirmatory factor of balanced scorecard in small and medium-sized enterprises (initial model).

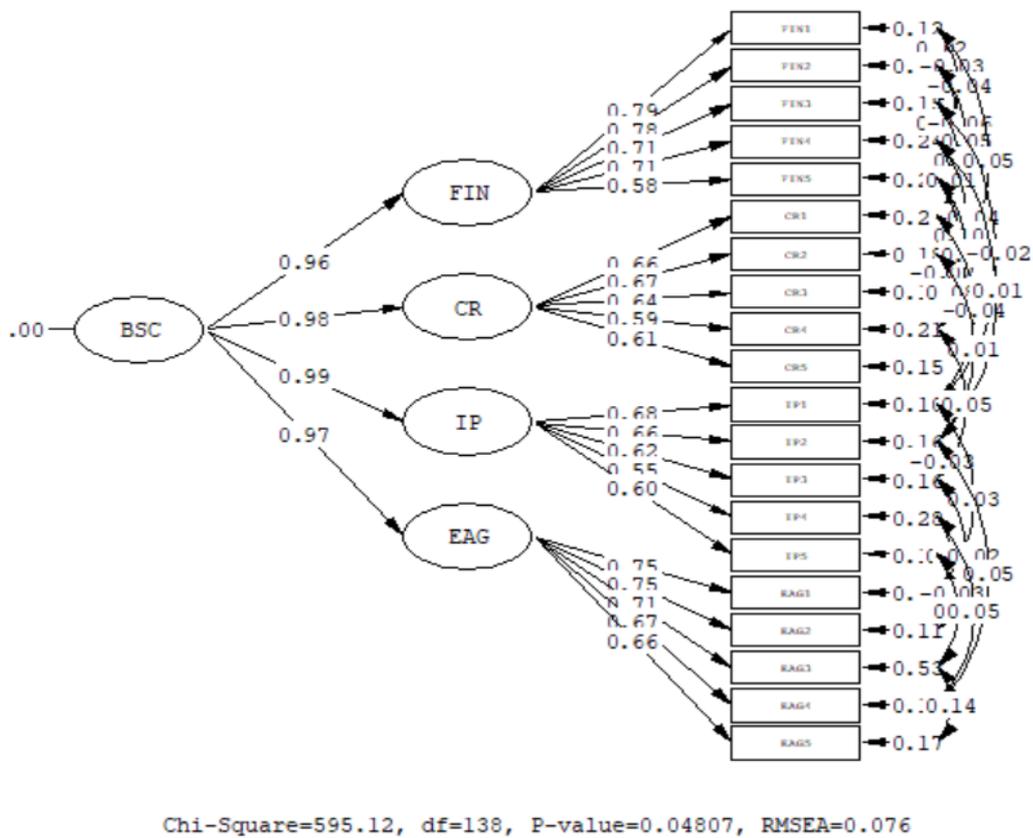


Figure 2. Second-order confirmatory factor of balanced scorecard in small and medium-sized enterprises (modified model).

**Table 3.** Goodness of Fit Test

Fit Indices	Criterion Guidelines	Initial Values	Acceptable	Modified Value	Acceptable
$\chi^2/df$	< 5	7.59	×	4.31	✓
RMSEA	0.03-0.08	0.15	×	0.08	✓
NFI	> 0.9	0.95	✓	0.97	✓
CFI	> 0.9	0.96	✓	0.97	✓
GFI	> 0.9	0.70	×	0.81	✓
SRMR	< .05	0.048	✓	0.037	✓

**Note:** ✓ mean the value passes the criterion guidelines of the goodness of fit indices

The results of the goodness of fit indices analysis of the model. In the modified factor analysis, the results of the fit model test were:  $\chi^2/df = 4.31$ , RMSEA = 0.08, NFI = 0.97, CFI = 0.97, GFI = 0.81, SRMR = 0.037. The indices prove that the new model has better empirical consistency because it meets the acceptance criteria. The analysis results can be explained from the latent endogenous variables to the observed endogenous variables and from latent exogenous variables to observed exogenous variables exhibited in Table 4-5.

**Table 4.** First-Order Confirmatory Factor Analysis

Matrix LAMDA - Y	EP	t-value	R <sup>2</sup>
<b>Balanced Scorecard (BSC)</b>			
Financial (FIN)	<u>0.96</u>	<u>18.83</u>	<u>0.89</u>
Customer Relationship (CR)	0.98	16.69	0.96
Internal Processes (IP)	<u>0.99</u>	<u>20.74</u>	<u>0.98</u>
Education & Growth (EAG)	0.97	19.34	0.94

The first-order confirmatory factor analysis depicted that the balanced scorecard in SMEs in Luang Prabang Province, Lao PDR, was influenced by *internal processes* the most, while the least influential was *financial*.

**Table 5.** Second-Order Confirmatory Factor Analysis

Matrix LAMDA - Y	EP	t-value	R <sup>2</sup>
<b>Financial (FIN)</b>			
Your SMEs have been continuously increasing income.	<u>0.79</u>	=	<u>0.84</u>
Your SMEs have increased profits compared to last year.	0.78	27.77	0.83
Your SMEs use the organization's budget and resources that are sufficient and cost-effective for management.	0.71	21.42	0.78
Your SMEs have reduced the operating costs of the organization.	0.71	18.42	0.68
Your SMEs can increase working capital and have investment flexibility.	<u>0.58</u>	<u>18.58</u>	<u>0.62</u>
<b>Customer Relationship (CR)</b>			
Customers are satisfied with the service and transactions with you.	0.66	-	0.66
Customers are satisfied with the service and coordination from your SMEs.	<u>0.67</u>	<u>17.79</u>	<u>0.72</u>
Your SMEs have an increasing number of customers continually.	0.64	17.35	0.69
Your SMEs can maintain a good base of old customers.	<u>0.59</u>	<u>16.28</u>	<u>0.64</u>
Your SMEs have a good image and reputation in the business.	0.61	17.86	0.72
<b>Internal Processes (IP)</b>			
The plans of your SMEs are suitable and can be implemented without problems.	<u>0.68</u>	=	<u>0.84</u>
Your SMEs can operate according to standards and achieve goals.	0.66	22.87	0.74
Your SMEs have an efficient working system.	0.62	21.65	0.71
Your SMEs have good communication and coordination within the organization.	<u>0.55</u>	<u>16.29</u>	<u>0.53</u>
Your SMEs have an equal and fair internal work process.	0.60	21.70	0.71

**Table 5.** Second-Order Confirmatory Factor Analysis (Cont.)

Matrix LAMDA - Y	EP	t-value	R <sup>2</sup>
<b>Education &amp; Growth (EAG)</b>			
The personnel in your organization have skills, knowledge, and expertise in the work, which increases every year.	0.75	-	0.82
The personnel in your organization share knowledge both within the department and between departments.	<u>0.75</u>	<u>25.80</u>	<u>0.83</u>
The personnel of your organization have a good attitude to work.	0.71	15.09	0.49
The personnel of your organization are satisfied and committed to work.	0.67	21.52	0.72
The personnel of your organization can apply modern information technology to work.	<u>0.66</u>	<u>21.83</u>	<u>0.73</u>

The key results of the second-order confirmatory factor analysis of balanced scorecard in small and medium enterprises are as shown.

1. Financial: Your SMEs have been continuously increasing income. ( $\lambda_{y_{11}}=0.79$ )
2. Customer Relationship: Customers are satisfied with the service and coordination from your SMEs. ( $\lambda_{y_{22}}=0.67$ )
3. Internal Processes: The plans of your SMEs are suitable and can be implemented without problems. ( $\lambda_{y_{31}}=0.68$ )
4. Education and Growth: The personnel in your organization share knowledge both within the department and between departments. ( $\lambda_{y_{42}}=0.75$ )

### Discussions and Recommendations

1. The size of the enterprise is statistically significant to the balanced scorecard overall and in each aspect. The research results convey that both small and medium-sized enterprises regard the importance of a balanced scorecard at the highest level. Although independently considered, BSC is more statistically important for medium-sized enterprises than small enterprises. The findings align with Kortana's

(2018) study, which suggested that medium-sized enterprises place a statistically significant emphasis on balanced scorecard above small enterprises.

2. The results of the first-order confirmatory factor analysis of the balanced scorecard in Luang Prabang SMEs presented that “internal processes” was the most prominent factor, while the minor aspect was “financial”. All the same, it acknowledged that every element is essential. The correlation test results using structural equation statistics confirmed that SMEs' efficiency in risk management resulted in a beneficial balanced scorecard (Kortana, 2018). Okudan, Budayan & Arayici (2022) suggest that the effectiveness of monitoring market conditions is the most important KPI, contrary to findings in studies of large companies. Additionally, attracting new customers, reliability of financial performance, and competency of managers are crucial metrics of the BSC's four KPIs.

#### **Suggestions for implementation**

1. In doing SMEs business in Lao PDR, it is necessary to find work potential. As SME entrepreneurs, it is required to consider the effectiveness of the balanced scorecard. Finance, customers, internal processes, and learning and growth are imperative. However, if considering the order of the components, it will be found that the internal processes aspect is the strength of Lao SMEs. Owing to most of the business is a family business and done in groups of people in neighboring villages. On the other hand, the major weakness that needs to be improved is finance which is an element that requires planning and managing carefully and concisely, especially for medium-sized enterprises, which need to be tightened and must pay more attention to the balanced scorecard.

2. Suggestions from the factor analysis are that entrepreneurs need to integrate strategies that result from well-planned internal processes. The personnel in the organization should have knowledge sharing both within the department and between departments to create learning and growth. Continue to build customer satisfaction, and maintain financial stability to have a continuous increase in income.

#### **Suggestions for further research**

1. This study is quantitative research and has limited data collection. Therefore, mixed-method should be used to get more in-depth information in the subsequent research.

2. Should study additional factors such as sustainability of the business, and strategic management, to develop a more comprehensive model for managing SMEs.

3. Should expand the study scope to cover other Laos provinces for complete information in the future.

### References

- Ahmad, F., Hamid, N. A., Ahmad, A. N. A., Nawi, M. N. M., Rahman, N. A. A. A., & Hamid, N. A. A. (2022). The Impact of TQM on business performances based on balanced scorecard approach in Malaysia SMEs. **International Journal for Quality Research**, **16**(1).231-242
- Bank of the Lao PDR. (2010). **Annual Economic Report**. Vientiane Prefecture. Bank of the Lao PDR.
- Banker, R.D., Chang, H. and Pizzini, M.J., (2004), The Balanced Scorecard: Judgmental Effects of Performance Measures Linked to Strategy, **The Accounting Review**.**79** (1): 1-23
- Bhatiasevi, V., & Naglis, M. (2020). Elucidating the determinants of business intelligence adoption and organizational performance. **Information Development**, **36**(1), 78-96.
- Boonlua, S., Waranuntakul, W., & Wongnara, T. (2015, July). The Impacts of Small and Medium Enterprises in Vientiane, LAO PDR. In Allied Academies International Conference. **Academy for Studies in International Business. Proceedings** (Vol. 15, No. 2, p. 1). Jordan Whitney Enterprises, Inc.
- Chong, P., Ong, T., Abdullah, A., & Choo, W. (2019). Internationalization and innovation on balanced scorecard (BSC) among Malaysian small and medium enterprises (SMEs). **Management Science Letters**, **9** (10), 1617-1632.
- Dilla, W.N., Steinbart, P.J., (2005), Relative Weighting of Common and Unique Balanced Scorecard Measures by Knowledgeable Decision Makers, **Behavioral Research in Accounting**, **17**(1) DOI:10.2308/bria.2005.17.1.43
- Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010) **Multivariate Data Analysis**. (7th Ed.), Pearson, New York.
- Ittner, C.D. and Larcker, D.F., (2 0 0 3 ), **Coming Up Short on Non-Financial Performance Measures**. Harvard Business Review, November Issue
- Kaplan, R. S. and Norton, D. P. (1992). The Balanced Scorecard – Measures that drive performance, **Harvard Business Review**. **70** (1) : 71–79

- Kortana,T. (2018). The Relationship Between the Efficiency of Risk Management and the Balanced Performance of SME Businesses in Bangkok's District .**The Journal of Industrial Technology**, **14** (3).106-107.
- Laos PRD. (2022). **Nature of government**. [online]. Retrieved March 11, 2022, from <https://sites.google.com/site/suckseedpotato/laksna-kar-pkkhrxng>
- Lao Statistics Bureau. (2006). **Report of the National Economic Survey No. 1**. Vientiane Prefecture. Statistics Bureau.
- Manycom,T and Sinchuen,C. (2012).The Effects of Entrepreneur's Potentiality on the Business Management Effectiveness: A Case Study of Small and Medium Enterprises in Bolikhamxay Province, The Lao People's Democratic Republic. *Journal of Management Science*, **Ubun Ratchathani University**. **1** (2).76-93.
- National Assembly of the Lao PDR (2013). **Enterprises Law, Lao PDR (2013: 4-12)**. Vientiane: National Assembly of the Lao PDR.
- Office of Small and Medium Enterprises Promotion. (2018). **Definition of SMEs**. [online]. Retrieved March 11, 2022, from <https://www.smebank.co.th/about/definition>
- Okudan, O., Budayan, C., & Arayici, Y. (2022). Identification and Prioritization of Key Performance Indicators for the Construction Small and Medium Enterprises. **Teknik Dergi**, **33**(5).1-27.
- Ryan, J.D., Ray, R.J. and Hiduke, G.P. (2006). **Small Business: An Entrepreneur's Business Plan**. (7th ed.). The Thomson South-Western: Dryden Press.
- Southiseng, N., & Walsh, J. (2010). Competition and management issues of SME entrepreneurs in Laos: Evidence from empirical studies in Vientiane Municipality, Savannakhet and Luang Prabang. **Asian Journal of Business Management**, **2**(3), 57-72. The Thomson South-Western: Dryden Press
- Thosuwonchinda, V. (2013). **Human Resource Management**. Bangkok: Forepace.
- Waruhiu, H. (2014). Rebalancing the Balanced Scorecard: A Sequel to Kaplan and Norton. **European Journal of Business and Management**. **6** (29).116-124.
- World Bank. (2015). **MPI and staff estimates and projections: Sustaining robust growth mitigating risks and deepening reforms Vientiane**, Lao PDR. The World Bank.

## WITHOUT HANDS AND EYES: CREATION OF CONTEMPORARY INSTRUMENTAL MUSIC

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### Abstract

This Creative work is to compose the “WITHOUT HANDS AND EYES” piece in kind of contemporary music. The creator was inspired by the paint entitle *without hands and eyes* painted by Tang Chang. The objectives of creation were: 1 to compose a tune entitled without hands and eyes and 2. Having the composition to be performed by the string combo band. The composer studied the musical harmony and counterpoint of the contemporary music and applied for the new composition such as a set of chords for examples extended and substitution chords, normal tempo with modulation and also dual harmony.

Research results

**Introduction** There are 12 bars, using percussion and piano to play. On the A scale, Natural Minor.  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  chords are performed. This introduction, there is no melody. Demonstrates resolute determination.

**Part A** There are 8 bars. Performed with drum set, electric guitar bass, electric guitar, and piano. The melody is performed in a Thai musical accent. There is an interlude of brass and woodwind section. It represents a sensitive power within.

**Part B** There are 20 bars. Use an electric guitar to perform the melody and modulated to G Major. Chord progression  $G / Am^{11} / G^{maj7} / Em^{11} / G / Am^{11} / G^{maj7} / Em^{11} E^7$  The melody is mostly smooth. Expressing pressure, lurking with confusion of emotions.

**Part C** Of this Part, the creators wished that the guitar was played using improvisation. There are 24 bars, on the A Natural Minor scale. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  Repeat this chord set 4 times and modulated to G Major. It conveyed the mood of the performer at that time. At the end of part C, there is a flashback with Part A, and Part B, and a flashback with Part A.

**Keywords:** Without hands and eyes, contemporary music, string combo

## Introduction

Early music composition the composer uses his imagination and inspiration to create songs without any theory. Later, the composer chose what he thought was good. And appropriate to be a model for composing and inherited the pattern for the next generation of composers to uphold and practice successively when society has changed according to the era Music has been developed to be adapted to different eras in accordance with modern trends. But still maintain the rules according to the convention. Later, the authors changed the way of writing that did not follow the traditional rules. New ideas are blended and created. (Chaiseri, 2013)

Among other artists outsider, Tang Chang (also known as Chang Sae-tang) is an artist who is well known among other artists such as Pratuang Emjaroen, Somchai Hattakitkosol, Suchart Watchan. Dilok or Somkiat Panasirisilp which artists outside the eyes of such artists are artists who study art by themselves and never received an art education in any institution Chang was born in the Somdet Market area. Along the Chao Phraya River, Thonburi side in the year 1934 by his father immigrated from China. The mother is a Chinese citizen living in Thailand. When he reached the age of maturity, he entered the primary school at Wat Phichai Yatakaram School. But soon after, World War II broke out. Zhang had to drop out of school and was never educated in the education system again. Chang is married to Ms. Xia Sae-Tang (deceased), has 4 sons and 3 daughters. Chang creates art works along with trade to support the family. without selling a single piece of art while he was alive. (Sae-Tang, 2019)

During the events of October 14, 1973, Chang created a large oil painting. It is a self-portrait without hands and eyes. Although the work is referred to by various names, such as the Eye of Not Seeing Evil, the hands did not serve the dictator Chang Sae-Tang in 1973 (Kunavichayanon, 2002, as cited in Sae-Tang, 2019) and October 14, 1973 (Poshyananda 1992, as cited in Sae-Tang, 2019). Chang did not name the work while he was alive. Later, the owner's heirs often referred to the painting as "Without hands and eyes", reflecting Chang's status as both a painter and a poet. as well as the appearance of Chang in the image without both hands while his eyes were gouged out.

From the work "Without hands and eyes", there are many forms of music cultural exchange. Which may be mixed with eastern instruments and western instruments Bringing songs from different cultures to mix together and play them in a

contemporary music style. If talking about Thai music culture and western music. More and more cultural exchanges for music are becoming more and more widespread. This combination is called "Thai contemporary music" means music that uses melodies, styles, accents, colors and feelings in a particular form or a combination of Thai style. Not limited to the types of musical instruments used, composing theory, principles, and methods. (Rattanaset, 2003)

String combo is a band that has a mix of the styles of two bands, the shadow band which consists of instruments, guitar, bass guitar, drum set and combo band consists of musical instruments: guitar, bass guitar, piano, drum set, saxophone, trumpet and trombone, which the band may have inconsistent with the instruments used to play, consistent with Meepom Dusadee, Thamangraksad Nilwan Has defined that band string combo band of this type adapted from the band combo and the shadow band is bringing instruments in the shadow band mixed with the combo band, but still the type of instruments. The guitar is a musical instrument that is more important than other musical instruments. (Meepom<sup>1</sup> and Thamangraksad<sup>2</sup>, n.d.)

The creative work "without hands and eyes: creation of contemporary instrumental music" was inspired by the picture "without hands and eyes" by Tang Chang, an independent artist. The creator wanted to convey the oppressive mood of the poet who had no hands and a painter without eyes, with ABACABA structure Part A represents the sensitive energy within, Part B shows the pressure behind the confusion of emotions, Part C now that the creators wanted the guitar to be played using an improvised instrument. In which between Part B and Part C, Part A comes back to play every time.

### Objectives

- 1) Create a song "without hands and eyes" in the style of contemporary music.
- 2) To play with a string combo.

### Literature Review

Harmony means vertical music. Sounds that occur at the same rhythm can also recognize the harmony. Because many notes that are harmonized occur at the same time on the beat. Therefore, harmonization is possible only in one case, when several sounds occur at the same time. A song that has at least 2 harmonies has to

be in harmony. One genre of music has no harmonics, and if there are two, it has to be different genres for it to have a harmonious sound 3 sound lines. (Sotiyaturak, 2004)

An arrangement is the conveying of ideas related to melody and harmony in the songs they are composing Adding different colors or styles in the melody is all about the mood. Editor's thoughts There are three main principles that need to be learned in composition, which are.

1. Melody
2. Rhythm
3. Harmony

One thing that editors can't ignore is understanding of the song because if the composer does not understand the emotional meaning of the song will not be able to make that song harmoniously and convey the purpose of the song to the listener Therefore, it can't really attract the audience's emotions to access the music. The song will be completely meaningless (Rassamee, 1993)

A chord is a group of three or more sounds arranged vertically. (Two or more sounds arranged together are not called chords. The basic principle of harmonization is the chord formation. And chord arrangement. (Suthonchit, 2003)

Chords consist of three or more notes that are in a fixed structure. Theoretically, such a group of three notes may be called Triad, which is the same word as Diad, which refers to two notes. Both Diad and Triad are the basic term for a group of notations itself. But it does not express a connection to its role and relationship with other groups of notes, therefore octave and chords are words to include that group of notes and their defined functions in the clef. As well As relationships that can be associated with other groups of notes. However, these terms, do not have a specific meaning, and therefore should be understood in the practical application of the chords.

1. The structure of the chords an introductory chord consists of three notes arranged the intervals of the 3<sup>rd</sup>, the lowest note is called the 1<sup>st</sup> note. The middle note is called the 3<sup>rd</sup> note because it is the interval of 3<sup>rd</sup> from the bottom note. And called the top note as the 5<sup>th</sup> note because it is far away from the bottom note is the intervals of 5<sup>th</sup>.

2. Types of chords there are 4 types of chords

- 2.1 Major chords (abbreviated M)

2.2 Minor chords (abbreviated m)

2.3 Diminished chords (abbreviated d or dim)

2.4 Augmented chords (abbreviated A or Aug)

3. Chord sound the factor that makes a chord sound different is the interval. Consonance and Dissonance of chord that make up the chord affect the sound of the chord.

3.1 Consonance of chords Major and minor chords are consonance of chords. Because it consists of all consonance.

3.2 Dissonance of chords Diminish chords and augmented chords are dissonance of chords. Because it consists dissonance of chords (diminish and augmented) make the sound of the diminishes chords and augmented chords classified as the dissonance of chords. Although the diminish chords and augmented chords have components of consonance (Interval of minor and Major), But when the sound is combined, Dissonance always destroys consonantal sound.

For chords inversion, the chord tones correspond to the chords in the initial form. Chords that consist of four or more notes, such as the seventh chord, the ninth chord, are considered harsh chords. Because it consists of at least 1 pair dissonance of chords, the main principle in considering chord sound is that if a chord has at least 1 pair dissonance of chords, it is considered a dissonance of chords. As for the consonance of chords, there must be no parts of the interval that are dissonance. (Phancharoen, 2015)

The melodies related to the composition are divided into two types

1. The main melody of the song
2. The melody is inserted into the song

The two types of melodies differ in their intended use. The main melody is the actual song. In this case, the composer may be the composer himself or it may be the melody that someone else has submitted for the arrangement. If the composer is the author himself, it's easy. Because they have a good understanding of their own songs, what will be conveyed to the listeners and how to convey them. But in the case of someone else's song, the composer must study the song or talk to the composer until he understands the purpose of the song.

For the melody to intervene in a song, it is often a short melody that the composer must create to interpolate the main melody. This is to make it interesting. Or a melodious creation according to the creativity of the composer However, it may

be a new melody that the composer has come up with in addition to the melody of the song to use as the beginning part, the instrumental part, or the ending part of the song (Rassamee, 2016)

### Conceptual Framework of Creative works

The creative work "without hands and eyes", the creator has interpreted from the picture "without hands and eyes", the creator has interpreted in a way of expressing the poet's emotional pressure without hands. And a painter without eyes.

### Creative Methodology

The creative work of "without hands and eyes", the creation of contemporary instrumental music, has the structure of ABACABA, which after Part B and Part C, Part A comes back to play every time. Time signature  $\frac{4}{4}$ , A Natural Minor and G Major scales. Tempo 118 Bpm. The details of each part are as follows.

**Introduction** There are 12 bars, using percussion and piano to play. On the A Natural Minor scale.  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  chords are performed. In this Introduction there is no melody. Demonstrates resolute determination

**Part A** There are 8 bars, performed with drum kit, electric guitar bass, electric guitar, and piano using the A Natural Minor scale. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$ , The melody is uttered with a Thai accent. There is an interlude of brass and woodwind instruments. It represents a sensitive power within.

**Part B** There are 20 bars using electric guitars to perform melodies. On the A scale, Natural Minor. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9} / Am^9 / Am^7 / C^{sus2} / C^{maj9} / C^6 / F^{maj7} / C^{sus2} / C^{maj9}$  12 bars. In the next 8 bars the sound scale was modulate to G Major. Chord progression  $G / Am^{11} / G^{maj7} / Em^{11} / G / Am^{11} / G^{maj7} / Em^{11} E^7$ , the melody is mostly smooth. Expressing pressure, lurking with confusion of emotions.

**Part C** Of this Part, the creators wished that the guitar was played using improvisation. There are 24 bars, on the A Natural Minor scale. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  Repeat this chord set 4 times and modulated to G Major. Chord progression  $G / Am^{11} / G^{maj7} / Em^{11} / G / Am^{11} / G^{maj7} / Em^{11} E^7$ . It conveyed the mood of the performer at that time. At the end of part C, there is a flashback with Part A, and Part B, and a flashback with Part A.

**Creative work**

The creative work "without hands and eyes" The creator analyzes the structure, melody, chords, mood. Time signature  $\frac{4}{4}$ , A Natural Minor and G Major scales, with an introduction of 12 bars, with percussion instruments. It starts in the first 4 bars, and in 5<sup>th</sup> bars to 12<sup>th</sup> bars, chords are played with piano and percussion instruments. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  chords are repeated 3 times.

Introduction

Chords are played with piano and percussion instruments

Part A has 8 bars, starting 13<sup>th</sup> bars to 20<sup>th</sup> bars, starting with a group of instruments, including drum set, electric guitar bass, electric guitar, and piano using A Natural Minor scale. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$  and the melody is uttered with a Thai accent. Up to 20<sup>th</sup> bars, the melody of the brass and woodwind section was inserted using a crisp melody to enter, Part B.

Instrumental

Melody

Brass and woodwind section

Part B contains 20 bars, starting from 21<sup>st</sup> bars to 40<sup>th</sup> bars, use the electric guitar to perform melodies that focus mainly on Chord tone, use A natural Minor scale. Most of them have a smooth melody. Use note repetition and sentence repetition to create interest. Using A Natural Minor scale. In 21<sup>st</sup> bars through 32<sup>th</sup> bars, Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9} / Am^9 / Am^7 / C^{sus2} / C^{maj9} / C^6 / F^{maj7} / C^{sus2} / C^{maj9}$ , and the scale is modulated to G major. 33<sup>rd</sup> bars to 40<sup>th</sup> bars is a relative key, interlacing the melody with brass and woodwind section. Chord progression  $G / Am^{11} / G^{maj7} / Em^{11} / G / Am^{11} / G^{maj7} / Em^{11} E^7$ , in which the 40<sup>th</sup> bars are used Substitution chords. Representing  $Em^{11}$  chord in the last two beats of the chord as  $E^7$  chord, which is the second Dominant chord of the next  $Am^9$  chord.

The image shows a guitar score for the first part of Part B (bars 21-32). It features a melody line in the treble clef and a bass line in the bass clef. The melody is written in A natural minor scale. Chords are indicated above the staff:  $Am^9$ ,  $Am^7$ ,  $C^{sus2}$ ,  $C^{maj9}$ ,  $Am^9$ ,  $Am^7$ ,  $C^{sus2}$ ,  $C^{maj9}$ ,  $C^6$ ,  $F^{maj7}$ ,  $C^{sus2}$ , and  $C^{maj9}$ . The bass line shows the corresponding chord voicings. There are two 'P.M.' (Pedal Point) markings with dashed lines indicating sustained notes in the bass line.

Melody on Chord tone

The image shows a guitar score for the second part of Part B (bars 33-40). It features a melody line in the treble clef and a bass line in the bass clef. The melody is written in G major scale. Chords are indicated above the staff:  $C^{maj9}$ ,  $G$ ,  $Am^{11}$ , and  $G^{maj7}$ . The bass line shows the corresponding chord voicings. The notation includes a double bar line at the beginning of the second part, indicating a key change.

Related key

The image shows musical notation for the brass and woodwind section. It consists of three staves: Trumpet (Tpt.), Tenor Saxophone (TEN Sax.), and Tenor Bass (TEN). The notation shows rhythmic patterns and melodic lines for each instrument, primarily using quarter and eighth notes.

Brass and woodwind section

At the end of part B, repeat to part A, go to part C in 49<sup>th</sup> bars to 61<sup>st</sup> bars, On the A Natural Minor scale. Chord progression  $Am^9 / Am^7 / C^{sus2} / C^{maj9}$ . Repeat this chord set 4 times. When entering the 57<sup>th</sup> bars, modulate to G major. This is a relative key.  $G / Am^{11} / G^{maj7}$  chords are performed.  $Em^{11} / G / Am^{11} / G^{maj7} /$

Em11 E7 In this episode C, the guitar is played using improvisation. And the flashback with Part A, Part B, and reverse the ending with Part A.

### WITHOUT HANDS AND EYES

KAMPANIT GATEWAY

Score for the first system of "Without Hands and Eyes". It includes parts for Trumpet in E♭, Tenor Saxophone, Trombone, Voice, Electric Guitar (two staves), Piano, Bass, and Drum Set. The tempo is marked as *J = 118*. The key signature has two sharps (F# and C#), and the time signature is 4/4. The guitar part features chords: Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, and C<sup>6</sup>Maj<sup>9</sup>.

Score for the second system, starting at measure 2. It includes parts for Trumpet, Tenor Saxophone, Trombone, Voice, Electric Guitar (two staves), Piano, Bass, and Drum Set. A first ending bracket labeled **A1** spans measures 2 through 5. The guitar part includes chords: Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, D<sup>9</sup>, A<sup>7</sup>, A<sup>7</sup>, C<sup>7</sup>, C<sup>7</sup>, and A<sup>7</sup>. The piano part includes chords: Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, and Am<sup>7</sup>. The drum set part includes a first ending bracket labeled **A1** and a measure with a 3-measure rest.

Score for the third system, starting at measure 18. It includes parts for Trumpet, Tenor Saxophone, Trombone, Voice, Electric Guitar (two staves), Piano, Bass, and Drum Set. A first ending bracket labeled **B1** spans measures 18 through 21. The guitar part includes chords: A<sup>7</sup>, C<sup>7</sup>, C<sup>7</sup>, Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, Am<sup>7</sup>, and Am<sup>7</sup>. The piano part includes chords: Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, Am<sup>7</sup>, Am<sup>7</sup>, C<sup>6</sup>F#<sup>9</sup>2, C<sup>6</sup>Maj<sup>9</sup>, Am<sup>7</sup>, and Am<sup>7</sup>. The drum set part includes a first ending bracket labeled **B1** and a measure with a 3-measure rest.

4

27

TRP.

TEN. SAX.

TEN.

VOICE

E. GTR.

E. GTR.

PNO.

BASS

DR.

36

TRP.

TEN. SAX.

TEN.

VOICE

E. GTR.

E. GTR.

PNO.

BASS

DR.

45

TRP.

TEN. SAX.

TEN.

VOICE

E. GTR.

E. GTR.

PNO.

BASS

DR.

54

TRP.

TEN. SAX.

TEN.

VOICE

E. GTR.

E. GTR.

PNO.

BASS

DR.

This musical score is arranged in ten systems, each containing staves for various instruments and a vocal line. The instruments are Trumpet (TRP.), Tenor Saxophone (TEN. SAX.), Trombone (TBN.), Voice, Electric Guitars (E. GTR.), Piano (PNO.), Bass (BASS), and Drums (DR.).

**System 8:** Features section marker **A3** at the beginning and **A2** at the end. Chords include Am<sup>3</sup>, Am<sup>7</sup>, C<sup>6</sup>9#2, C<sup>maj</sup>3, Am<sup>3</sup>, Am<sup>7</sup>, C<sup>6</sup>9#2, C<sup>maj</sup>3, Am<sup>3</sup>, and Am<sup>7</sup>.

**System 9:** Features section marker **A5** at the beginning and **A2** at the end. Chords include C<sup>6</sup>9#2, C<sup>maj</sup>3, Am<sup>3</sup>, Am<sup>7</sup>, C<sup>6</sup>9#2, C<sup>maj</sup>3, C<sup>3</sup>, F<sup>maj</sup>7, and C<sup>6</sup>9#2.

**System 10:** Features section marker **A2** at the beginning. Chords include C<sup>maj</sup>3, G, Am<sup>11</sup>, G<sup>maj</sup>7, Em<sup>11</sup>, G, Am<sup>11</sup>, G<sup>maj</sup>7, Em<sup>11</sup>, and E<sup>7</sup>.

**System 11:** Features section marker **A4** at the beginning and **A4** at the end. Chords include Am<sup>3</sup>, Am<sup>7</sup>, C<sup>6</sup>9#2, C<sup>maj</sup>3, Am<sup>3</sup>, Am<sup>7</sup>, C<sup>6</sup>9#2, C<sup>maj</sup>3, and Am<sup>7</sup>.

## Conclusion

From the creator's purpose, "WITHOUT HANDS AND EYES" a contemporary instrumental music. Until the creation of a creative work inspired by the picture "without hands and eyes" as a creative work. And also to promote Thai music to reach the listeners in the modern era in the form of popular music In addition, instruments and music content can be adjusted accordingly.

## Discussions

Creative work "WITHOUT HANDS AND EYES" a contemporary instrumental music, able to convey and communicate emotions according to the framework laid down from bringing the audio file to 3 experts to be heard and criticized found that the elements of creative work able to convey emotions according to the frame that is actually laid out.

## Suggestions

This creative work "without hands and eyes" is created with contemporary composing techniques. To reach the era and close to the purpose There are also many techniques in contemporary composition that can be used to create contemporary music. I hope that the creation of music "without hands and eyes" the creation of contemporary instrumental music. It will be a guideline for creating contemporary music for interested parties.

## References

- Chaiseri, P. (2013). **Composing Thai songs**. Bangkok: Chulalongkorn University, 2.
- Phancharoen, N. (2015). **Harmony**. (5<sup>th</sup> printing). Bangkok: Ketkarat Publishing House, 6-8.
- Rasmee, S. (1993). **Arrangement**. Bangkok: Printer Department Phra Nakhon Polytechnic College, 7.
- (2016). **Arranging for Popular Music**. Bangkok: Printing House, Sahathhamik Company Limited, 31.
- Rattanaset, R. (2003). **Analysis of the composition. Candle risk song For the symphony orchestra of Kru Prasit Silapabanleng**. Master's thesis. Srinakharinwirot University.

Sae-tang, N. (2019) **Tang Chang and Art Field Before / After 14 October 1973.**

Journal of Social Sciences, Naresuan University. 15 (Suppl.2),112-136.

Sotiyaturak, N. (2004). **Form and Analysis.** (3<sup>rd</sup> printing). Bangkok: Chulalongkorn University Press. 51-52.

Suttajit, N. (2003). **Sangkhetism, the appreciation of western music.** 4<sup>th</sup> edition, revised. Bangkok: Publishing House of Chulalongkorn University, 25.

Meepom, D. and Thamangraksad N. (n.d.). **Music-Dancing Arts.** Bangkok : Wattana Panich Publishing House, 12.

# APPENDIX

## Appointment of Persons in Charge of the Arrangement for the Symposium





Bangkokthonburi University

No.120/2021

The Tenth National Symposium and the Fifth International Symposium

Bangkokthonburi University

“Creativity, Innovations, Social Order and Wellbeing in Times of COVID- 19 Pandemic”

(CISOWCOP)

Bangkokthonburi University has planned to arrange the tenth national symposium and the fifth international symposium on. “Creativity, Innovations, Social Order and Wellbeing in Times of COVID- 19 Pandemic (CISOWCOP)” The Symposium includes the research works in the following areas: Humanities and Social Sciences, Science and Technology and Health Science.

The symposium will be held on May 8<sup>th</sup>, 2022 between 8.30 and 16.00 of online conference program.

To enable the symposium to be efficiently and effectively operated Bangkokthonburi University has appointed the following persons to serve on various committees:

### 1. Advisory Committee

- |  |   |             |
|--|---|-------------|
| 1. Assoc.Prof.Dr. Bangorn Benatikul    | President of Bangkokthonburi University                           | Chairperson |
| 2. Assoc.Prof.Dr. Panya Roongruang     | Vice President for Academic Affairs<br>Dean, Faculty of Music     | Adviser     |
| 3. Assoc.Prof.Dr.Satit Niyomyaht       | Vice President for Research<br>and Academic Service               | Adviser     |
| 4. Asst.Prof.Dr.Wittaya Benjathikun    | Vice President for Administration Affairs<br>Dean, Faculty of Law | Adviser     |
| 5. Mr.Chaisin Sukwiboon                | Vice President for Budget and<br>Finance Affairs                  | Adviser     |
| 6. Assoc.Prof.Dr.Pisit Siriruk         | President of Phanomwan College<br>of Technology                   | Adviser     |
| 7. Assoc.Prof.Dr.Udomvit Chaisakunkerd | President of Rajamangala University<br>of Technology              | Adviser     |

8. Asst.Prof.Rachen Muanchob	President of Chandrakasem Rajabhat University	Adviser
9. Asst.Prof.Kulthanee Siriruk	Vice President for Administration, Phanomwan College of Technology	Adviser
10. Dr.Wiparat De-ong	Deputy Director of National Research Council	Adviser
11. Mr.Kongsak Yodmanee	Sports Authority of Thailand	Adviser

### Duties and Responsibilities of the Advisory Committee

Providing advice, assistance and support to all committees appointed by BTU.

### 2. The Steering Committee

1. Assoc.Prof.Dr.Satit Niyomyaht	Vice President for Research and Academic Service	Chairperson
2. Assoc.Prof.Dr. Panya Roongruang	Vice President for Academic Affairs Dean, Faculty of Music	Associate Chairperson
3. Asst.Prof.Dr.Wittaya Benjathikun	Vice President for Administration Affairs Dean, Faculty of Law	Committee Member
4. Assoc.Prof.Dr. Panya Roongruang	Vice President for Academic Affairs Dean, Faculty of Music	Committee Member
5. Prof. Saranatra Waikakul(M.D.)	Dean, Faculty of Medicine	Committee Member
6. Assoc.Prof.Dr. Sukanya Buranadechachai	Dean, Faculty of Communication Arts	Committee Member
7. Assoc.Prof.Dr. Kamolporn Kalyanamitra	Dean, Faculty of Political Science	Committee Member
8. Assoc.Prof.Thongnard Kumchai (D.D.S)	Dean, Faculty of Dentistry	Committee Member
9. Asst.Prof.Dr. Kamolmal Chaisirithunya	Dean Faculty of Education	Committee Member
10. Asst.Prof.Uthai Aungcharern	Dean Faculty of Engineering	Committee Member
11. Dr.Warangkana Photiluk	Dean, Faculty of Public Health	Committee Member
12. Dr.Supatra Chantanasiri	Dean, Faculty of Business Administration	Committee Member
13. Dr.Prateep Panya	Dean, Faculty of Nursing	Committee Member
14. Dr.Prakit Hongsasaenyatham	Dean, Sports Science and Technology	Committee Member
15. Dr.Suthasinee Wiyaporn	Dean, Faculty of Liberal Arts	Committee Member
16. Dr.Soonthorn Saengpeteh	Acting Dean, Science and Technology	Committee Member

17. Dr.Chalida linjee	Dean, Faculty of Accountancy	Committee Member
18. Dr.Chatpaween Umpa	Director of International language Institute	Committee Member
19. Mr.Mathasit Addok	Dean, Faculty of Fine Arts	Committee Member
20. Dr.Natcha Krimjai	Acing,Director of Research Office	Committee Member

### Duties and Responsibilities of the Steering Committee

1. Providing operating and coordinating support as well as monitoring the operations of various committees.
2. Designing methods of arranging the symposium in collaborative efforts with various participating parties and inviting participating groups to get together with a view to making plans to conduct various activities concerning the arrangement of the symposium from start to finish.
3. Providing advice on the symposium arranging system and on thematter pertaining to the presentation of research works.
4. Providing the conceptual framework of arranging the symposium or conference on academic activities.
5. Providing advice on the appointment of various committees such as the action committee, the monitoring committee and the work assessment committee.
6. Providing advice on the publication of the symposium activities.
7. Making plans and preparations for the symposium in a way that the objectives of the symposium could be achieved with great success.
8. Making efforts to monitor the progress of the symposium arrangement and to evaluate the results of the symposium arrangement.

### 3. The Symposium Arrangement Committee

#### 3.1 The coordinating and Ceremonial Committee

1. Assoc.Prof.Dr.Prapaisri Holomyong	Head of the English Department	Chairperson
2. Dr.Natcha Krimjai	Acing,Director of Research Office	Associat Chairperson
3. Dr.Olan Kanjanakas	Deputy Director of International Education Office	Committee Member
4. Dr.Suthasinee Wiyaporn	Dean, Faculty of Liberal Arts	Committee Member
5. Mr.Ali Sempher	Staff Member of the Research Office	Committee Member
6. Mr.Akarapong Boontae	Staff Member of the Research Office	Committee Member
7. Miss.Kuntinun jitraoon	Staff Member of the Research Office	Committee Member and Secretary

### Duties and Responsibilities

1. Searching out the highly qualified lecturers such as a lecturer for introductory speech and a lectures for keynote speech.
2. Organizing programs for various presentations.
3. Making plans and preparations so as to enable the symposium to meet its set goals.
4. Preparing the schedules of the symposium.
5. Making requests for the approval from the authorities concerned with an eye to inviting persons of high caliber for making speeches, reviewing the submitted research works and the like.
6. Inviting there who wish to present their research works - oral presentation or presentation in the form of poster display.
7. Searching out the souvenirs or gifts for special lecturers and the person presiding over the symposium.
8. Preparing some gifts for all participants such as cloth bags.
9. Preparing certificates for all participants.
10. Inviting the president of BTU to make an opening speech.
11. Making coordinating efforts with various sections or parties.
12. Following up on the likely research work presenters with regard to their research papers to be presented and the form of paper presentation.
13. Summarizing the program activities and keeping the editors and the symposium organizing committee members well-informed about the symposium activities.

### 3.2 Publication and Website Committee

- |   |  |                                   |
|---|--|-----------------------------------|
| 1. Assoc.Prof.Dr. Sukanya Buranadechachai | Dean, Faculty of<br>Communication Arts                   | Chairperson                       |
| 2. Dr.Sirachaya Karawek                   | Director of Information<br>Service Center                | Committee Member                  |
| 3. Miss.Varintorn jangroch                | Teacher attached to the<br>Faculty of Communication Arts | Committee Member                  |
| 4. Mr.Kasem Chanyadee                     | Teacher attached to the<br>Faculty of Communication Arts | Committee Member                  |
| 5. Ms.Natthinee Choochaay                 | Teacher attached to the<br>Faculty of Communication Arts | Committee Member                  |
| 6. Ms.Rattiporn Na Nakorn                 | Teacher attached to the<br>Faculty of Communication Arts | Committee Member                  |
| 7. Mr.Nattawiroth Mahayot                 | Teacher attached to the<br>Faculty of Communication Arts | Committee Member                  |
| 8. Miss.Kritiya Kawejarukon               | Director of BTU TV station                               | Committee Member<br>and Secretary |

### Duties and Responsibilities

1. Making designs of posters, flip charts, etc. for publication purposes.
2. Publicizing the symposium by means of various media such as websites, televisions and radios.
3. Preparing websites to publicize the seminar and registering the participants by resorting to online.
4. Recording pictures and preparing videotapes about the symposium activities.
5. Inviting correspondents to make news about the symposium.
6. Taking care of the incoming correspondents.
7. Collecting information about the symposium for press release.
8. Sending the picture of the opening ceremony to various media for publication.
9. Preparing some souvenirs for correspondents.
10. Designing bulletin boards, pamphlets, and signs showing the directions leading to the venue of the symposium.
11. Performing other assigned tasks.

### 3.3 Arts and Exhibition Committee.

- |    |                        |  |                  |
|----|------------------------|--|------------------|
| 1. | Mr.Mathasit Addok      | Dean, Faculty of Fine Arts                   | Chairperson      |
| 2. | Mr.Nopanan Balisee     | Teacher attached to the Faculty of Fine Arts | Committee Member |
| 3. | Mr.Pramet Klangmuenwai | Teacher attached to the Faculty of Fine Arts | Committee Member |

### Duties and Responsibilities

1. Making designs of backdrops and decorating scenes on the stage.
2. Making designs of positioning various boards and demolishing the boards after the symposium has come to an end.
3. Putting up the posters of the presenters.
4. Taking care of the places of exhibition and decorating the exhibition places.
5. Designing the cover of proceedings and the cover of CD proceedings.
6. Designing the souvenirs (cloth bags).

### 3.4 Building case and Safe Keeping Committee.

- |    |                        |   |                  |
|----|------------------------|---|------------------|
| 1. | Mr.Somphop Srisampan   | Director of Building Department                 | Chairperson      |
| 2. | Mr.Phichai Sandoat     | Director of the Safety and order Keeping Office | Committee Member |
| 3. | Mr.Eak Sakang          | Staff Member of The Student Affairs Office      | Committee Member |
| 4. | Ms.Ekanong Pertkhuntod | Staff Member of the Presidents Office           | Committee Member |

### Duties and Responsibilities

1. Fixing signs pointing the directions leading to the symposium building.
2. Decorating the small conference rooms and the large rooms, taking care of the cleanliness of the rooms, and making the rooms ready for use in the symposium activities.
3. Fixing the sound system and making sure that the sound system is in good order.
4. Making plans for use in the keeping of security and order in the symposium areas and for dealing with the traffic flow in the campus.

### 3.5 Documents Committee

- |                           |   |                                   |
|---------------------------|---|-----------------------------------|
| 1. Mr.Sitthiporn Porahong | Director of Textbook and Academic<br>Media Development Office | Chairperson                       |
| 2. Mr.Ali Sempher         | Staff Member of the Research Office                           | Committee Member                  |
| 3. Mr.Akarapong Boontae   | Staff Member of the Research Office                           | Committee Member                  |
| 4. Miss.Kuntinun Jitraoon | Staff Member of the Research Office                           | Committee Member<br>and Secretary |

### Duties and Responsibilities

1. Preparing proceedings to publicize articles having been presented – oral presentation and presentation in the form of poster display.

### 3.6 First Aid Service Delivery Committee

- |                                    |   |                  |
|------------------------------------|---|------------------|
| 1. Dr.Prateep Panya                | Dean, Faculty of Nursing                      | Committee Member |
| 2. Assoc.Prof.Dr.Sulee Tongvichean | Teacher attached to the<br>Faculty of Nursing | Committee Member |
| 3. Dr.Suvimon sanveingchan         | Teacher attached to the<br>Faculty of Nursing | Committee Member |

### Duties and Responsibilities

1. Preparing nursing personnel, medical equipment and medicines for use in the first aid service delivery.
2. Creating the suitable place in which first aid service can be delivered in a convenient, timely manner.

### 3.7 Reception and Food Preparation Committee

- |   |   |                  |
|---|---|------------------|
| 1. Assoc.Prof.Dr.Prapaisri Holomyong    | Head of the English Department                                  | Chairperson      |
| 2. Assoc.Prof.Dr.Patariya Ruaisamran    | Teacher attached to the Institute<br>of International languages | Committee Member |
| 3. Dr.Olan Kanjanakas                   | Director of International<br>Education Office                   | Committee Member |
| 4. Dr.Chatpaween Umpa                   | Director of International language                              | Committee Member |
| 5. Lieutenant General Choocheep Sukhmue | Teacher attached to the Institute                               | Committee Member |

	of International languages	
6. Miss.Wichsuda Roiphila	Department of Hotels, Faculty	Committee Member
	of Liberal Arts	
7. Mr.Kittikhun Kreangarmjornki	Teacher attached to the Faculty	Committee Member
	of Liberal Arts	
8. Mr.Poonnirun Aungsutheeraku	Teacher attached to the Faculty	Committee Member
	of Liberal Arts	
9. Miss.Punnapaporn Chancha	Teacher attached to the Faculty	Committee Member
	of Liberal Arts	
10. Mr.Nattakorn Decha	Teacher attached to the Faculty	Committee Member
	of Liberal Arts	
11. Mrs.Gansiree Paonaktammarat	Teacher attached to the Faculty	Committee Member
	of Liberal Arts	
12. Miss.Wirawan Deelert	Teacher attached to the	Committee Member
	department of the Thai Language	
13. Miss.Darawan Ketawalha	Teacher attached to the	Committee Member
	department of the Thai Language	
14. Mr.Wiphap Khantha	Teacher attached to the	Committee Member
	department of the Thai Language	
15. Ms.Hayati Saha	Staff Member of the Institute	Committee Member
	International languages	and Secretary

#### Duties and Responsibilities

1. Receiving the symposium participants with a bright smile, kind words and pleasant welcome.
2. Registering the participants and giving documents as well as souvenirs to them.
3. Preparing flowers, foods and beverages.
4. Performing other assigned tasks relevant to the symposium activities
5. Putting up tables for registration and fixing exotic cloth to beautify the stage.

#### 4. Editorial Lection

- |                                     |   |                       |
|-------------------------------------|---|-----------------------|
| 1. Assoc.Prof.Dr. Panya Roongruang  | Vice President for Academic Affairs<br>Dean, Faculty of Music | Chairperson           |
| 2. Assoc.Prof.Dr.Satit Niyomyaht    | Vice President for Research and<br>Academic Service           | Associate Chairperson |
| 3. Asst.Prof.Dr.Wittaya Benjathikun | Vice President for Administration<br>Dean, Faculty of Law     | Committee Member      |
| 4. Prof. Saranatra Waikakul(M.D.)   | Dean, Faculty of Medicine                                     | Committee Member      |

5.	Assoc.Prof.Dr. Kamolporn Kalyanamitra	Dean, Faculty of Political Science	Committee Member
6.	Assoc.Prof.Dr. Sukanya Buranadechachai	Dean, Faculty of Communication Arts	Committee Member
7.	Assoc.Prof.Thongnard Kumchai (D.D.S)	Dean, Faculty of Dentistry	Committee Member
8.	Asst.Prof.Dr. Kamolmal Chaisirithunya	Dean Faculty of Education	Committee Member
9.	Asst.Prof.Uthai Aungcharern	Dean Faculty of Engineering	Committee Member
10.	Dr.Warangkana Photiluk	Dean, Faculty of Public Health	Committee Member
11.	Dr.Supatra Chantanasiri	Dean, Faculty of Business Administration	Committee Member
12.	Dr.Prateep Panya	Dean, Faculty of Nursing	Committee Member
13.	Dr.Prakit Hongsaenyatham	Dean, Sports Science And Technology	Committee Member
14.	Dr.Suthasinee Wiyaporn	Dean, Faculty of Liberal Arts	Committee Member
15.	Dr.Soonthorn Saengpeteh	Acting Dean,Science and Technology	Committee Member
16.	Dr.Chalida linjee	Dean, Faculty of Accountancy	Committee Member
17.	Mr.Mathasit Addok	Dean, Faculty of Fine Arts	Committee Member
18.	Ms.Chatpaween Umpa	Director of International language Institute	Committee Member
19.	Dr.Natcha Krimjai	Acing,Director of Research Office	Committee Member

#### **Duties and Responsibilities**

1. Designing the method of registering the symposium participants.
2. Establishing criteria used for selecting the proposed research works – both for and oral presentation for the presentation in the form of poster display.
3. Selecting experts for the peer review of the proposed research works.
4. Monitoring and evaluating the symposium activities.

#### **4.1 Subcommittees for Research Work Peer review Humanities Social Sciences.**

##### **4.1.1 Subcommittee for Research Work Peer Review.**

###### **Internal Peer Reviews**

- |    |                                |   |                          |
|----|--------------------------------|---|--------------------------|
| 1. | Assoc.Prof.Dr.Panya Roongruang | Vice President for Academic Affairs<br>Dean, Faculty of Music | Chairperson              |
| 2. | Assoc.Prof.Dr.Satit Niyomyaht  | Vice President for Research and Academic Service              | Associate<br>Chairperson |

3.	Asst.Prof.Dr.Wittaya Benjathikun	Vice President for Administration Affairs Dean, Faculty of Law	Subcommittee Member
4.	Assoc.Prof.Lt.Gen.Dr.Weera Wongsan	Teacher attached to the Faculty of Education	Subcommittee Member
5.	Assoc.Prof.Dr.Sutep Uomcharoen	Teacher attached to the Faculty of Education	Subcommittee Member
6.	Assoc.Prof.Dr.Peerapong Tipak	Teacher attached to the Faculty of Education	Subcommittee Member
7.	Assoc.Prof.Dr. Kamolporn Kalyanamitra	Dean, Faculty of Political Science	Subcommittee Member
8.	Assoc.Prof.Dr.Tasanee Lakchanapichonchach	Teacher attached to the Faculty of Political Science	Subcommittee Member
9.	Assoc.Prof.Dr. Nattawat Siriphornwut	Teacher attached to the Faculty of Political Science	Subcommittee Member
10.	Assoc.Prof.Dr. Sukanya Buranadechachai	Dean, Faculty of Communication Arts	Subcommittee Member
11.	Assoc.Prof.Pakorn Rodchangpuan	Teacher attached to the Faculty of Music	Subcommittee Member
12.	Assoc.Prof. Siripong Sajjanand	Teacher attached to the Faculty of Business Administration	Subcommittee Member
13.	Assoc.Prof.Satana Rojanatakul	Teacher attached to the Faculty of Music	Subcommittee
14.	Assoc.Prof.Orawan Banchongsilapa	Teacher attached to the Faculty of Music	Subcommittee Member
15.	Asst.Prof.Dr.Chutasiri Yodwised	Teacher attached to the Faculty of Music	Subcommittee Member
16.	Asst.Prof.Dr.Pramote Danpadit	Teacher attached to the Faculty of Music	Subcommittee Member
17.	Asst.Prof.Dr. Sutin Noppaket	Teacher attached to the Faculty of Political Science	Subcommittee Member
18.	Asst.Prof.Dr. Jarin Suankaew	Teacher attached to the Faculty of Political Science	Subcommittee Member
19.	Asst.Prof.Dr. Wichit Boonsahnong	Teacher attached to the Faculty of Political Science	Subcommittee Member
20.	Asst.Prof.Dr. Amphon Panya	Teacher attached to the Faculty of Political Science	Subcommittee Member

21. Asst.Prof.Dr. Ardyuth Netithanakul	Teacher attached to the Faculty of Political Science	Subcommittee Member
22. Asst.Prof.Dr.Kamolmal Chaisirithunya	Teacher attached to the Faculty of Education	Subcommittee Member
23. Asst.Prof.Dr.Nitwadee Jirrotephinyo	Teacher attached to the Faculty of Education	Subcommittee Member
24. Asst.Prof.Dr.Nittaya Srimakutpan	Teacher attached to the Faculty of Education	Subcommittee Member
25. Asst.Prof.Dr.Pornthep Muangman	Teacher attached to the Faculty of Education	Subcommittee Member
26. Asst.Prof.Dr.Somsak Janpong	Teacher attached to the Faculty of Education	Subcommittee Member
27. Asst.Prof.Dr.Prakan Gerdmeesuk	Teacher attached to the Faculty of Education	Subcommittee Member
28. Asst.Prof.Dr.Sakchai Hirunrak	Teacher attached to the Faculty of Music	Subcommittee Member
29. Asst.Prof.Dr.Parnote Meeson	Teacher attached to the Faculty of Music	Subcommittee Member
30. Asst.Prof.Dr.Suchart Prakthayanon	Teacher attached to the Faculty of Business Administration	Subcommittee Member
31. Asst.Prof.Dr.Buraporn Kamboon	Teacher attached to the Faculty of Business Administration	Subcommittee Member
32. Asst.Prof.Dr.Panom Wanasiri	Teacher attached to the Faculty of Communication	Subcommittee Member
33. Asst.Prof.Dr.Kanokrat Yossakrai	Teacher attached to the Faculty of Communication	Subcommittee Member
34. Asst.Prof.Dr.Sangiam Boossababarn	Teacher attached to the Faculty of Law	Subcommittee Member
35. Asst.Prof.Dr.Sutida Howatthanakul	Teacher attached to the Faculty of Education	Subcommittee Member
36. Asst.Prof.Watin Nookua	Teacher attached to the Faculty of Law	Subcommittee Member
37. Lt.Gen.Dr.Smairob Suthiwart-Narueput	Teacher attached to the Faculty of Law	Subcommittee Member
38. Dr. Preeyaporn Hetrakul	Teacher attached to the Faculty of Political Science	Subcommittee Member
39. Dr. chana Rhataphakdee	Teacher attached to the Faculty of Political Science	Subcommittee Member

40. Dr.Somchai Rattanaphumpinyo	Teacher attached to the Faculty of Political Science	Subcommittee Member
41. Dr.Adul Laohaphon	Teacher attached to the Faculty of Political Science	Subcommittee Member
42. Dr.Tawatchai Sawangsap	Teacher attached to the Faculty of Political Science	Subcommittee Member
43. Dr.Urainwan Pongsupakul	Teacher attached to the Faculty of Political Science	Subcommittee Member
44. Dr.Somphop Srisampan	Teacher attached to the Faculty of Political Science	Subcommittee Member
45. Dr.Thanaphan Poonchob	Teacher attached to the Faculty of Political Science	Subcommittee Member
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102.Dr.Benjatha Wattanakul	Teacher attached to the Faculty of Business Administration	Subcommittee Member
103.Dr.Ariya Phuvakeereevivat	Teacher attached to the Faculty of Business Administration	Subcommittee Member
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106.Dr.Phongthep Srisopajit	Teacher attached to the Faculty of Business Administration	Subcommittee Member
107.Dr.Raden Tanparcha	Teacher attached to the Faculty of Business Administration	Subcommittee Member

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5. Assoc.Prof.Dr. Thanaphat Patchim	Suan Dusit University	Subcommittee Member
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38.	Asst.Prof.Dr.Supaporn Sompai boon	Suan Dusit University	Subcommittee Member
39.	Asst.Prof.Dr.Pakaporn Krachadthong	Suan Dusit University	Subcommittee Member
40.	Asst.Prof.Dr.Natchanan Werakul	Suan Dusit University	Subcommittee Member
41.	Asst.Prof.Dr.Surapong Nimkertpol	Suan Dusit University	Subcommittee Member

42. Asst.Prof.Dr.Dararut Sungkeag	Rajamangala University of Technology Rattanakosin	Subcommittee Member
43. Asst.Prof.Dr.Samphan Jundee	Rajamangala University of Technology Rattanakosin	Subcommittee Member
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46. Asst.Prof.Dr.Kittipong Poonchob	Mahidol University	Subcommittee Member
47. Asst.Prof.Dr.Nuth Otanasp	Southeast Asia University	Subcommittee Member
48. Asst.Prof.Noppadon Theeraworgpinyo	Program of Law Buriram Rajabhat University	Subcommittee Member
49. Asst.Prof.Montree Panichayanuwat	Suan Dusit University	Subcommittee Member
50. Asst.Prof.Kriangkri Duangkhajon	Nakhon Ratchasima Rajabhat University	Subcommittee Member
51. Asst.Prof.Puchong Manasin	Suan Dusit University	Subcommittee Member
52. Asst.Prof.Phatraporn Punatang	Suan Dusit University	Subcommittee Member
53. Asst.Prof.Namphung Kwaipun	Suan Dusit University	Subcommittee Member
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61. Dr.Mohntohn Srisuk	Uttaradit Rajabhat University	Subcommittee Member
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69. Dr.Sirilak Thiangtham	Independent scholar	Subcommittee Member

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81. Dr.Sasithon Dechprom	Thammasat University	Subcommittee Member
82. Dr.Airawee Wiraphanphong	Suan Sunandtha Rajabhat University	Subcommittee Member

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2. Assoc.Prof.Dr.Satit Niyomyaht	Vice President for Research and Academic Service	Associate Chairperson
3. Asst.Prof.Dr.Wittaya Benjathikun	Vice President for Administration Dean, Faculty of Law	Subcommittee Member
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5. Assoc.Prof. Nopporn Tasnaina	Teacher attached to the Sports Science and Technology	Subcommittee Member
6. Assoc.Prof.Dr.Chanchai Siriphan	Teacher attached to the Sports Science and Technology	Subcommittee Member

7. Assoc.Prof.Dr.Eak Kerdttempoom	Teacher attached to the Sports Science and Technology	Subcommittee Member
8. Assoc.Prof.Direk Tongaram	Teacher attached to the Science and Technology	Subcommittee Member
9. Asst.Prof.Dr.Suthep Thongpae	Teacher attached to the Science and Technology	Subcommittee Member
10. Asst.Prof.Dr.Yurasin Wattanapyungkul	Teacher attached to the Sports Science and Technology	Subcommittee Member
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20. Dr.Achara Aoachalerm	Teacher attached to the Sports Science and Technology	Subcommittee Member
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22. Dr.Prapun Wattanadechachan	Teacher attached to the Faculty of Engineering	Subcommittee Member
23. Dr.Bundit Rittong	Teacher attached to the Faculty of Engineering	Subcommittee Member
24. Dr.Promphak Boonraksa	Teacher attached to the Faculty of Engineering	Subcommittee Member
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29. Dr.Anurak Jansri	Teacher attached to the Science and Technology	Subcommittee Member
30. Dr.Suwilai Areejit	Teacher attached to the Science and Technology	Subcommittee Member
31. Dr.Thongchat Phucharoen	Teacher attached to the Science and Technology	Subcommittee Member
32. Dr.Wisute Tongdecharoen	Teacher attached to the Science and Technology	Subcommittee Member

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17. Dr.Kannika Daungcharone	College of Art, Media and Technology Chiang Mai University	Subcommittee Member
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27. Dr.Thongchat Kerdphol	Lecturer,Kyushu Institute of Technology,Japan Sensui-cho, Tobata-ku Kitakyushu-shi,Fukuoka	Subcommittee Member
28. Dr.Supparerk Boontein	King Mongkuts university of Technology Thoburi	Subcommittee Member

#### 4.1.3 Subcommittee on Research Work Peer Review: Health Science

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7. Assoc.Prof.Dr.Cholticha Amornchat	Teacher attached to the	Subcommittee Member

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8. Assoc.Prof.Dr.Petcharat Kraivaphan	Teacher attached to the Faculty of Dentistry	Subcommittee Member
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11. Asst.Prof.Dr.Yosananda Chantravekin	Teacher attached to the Faculty of Dentistry	Subcommittee Member
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13. Asst.Prof.Supunnee Thrakul	Teacher attached to the Faculty of Nursing	Subcommittee Member
14. Asst.Prof.Thunyaluck Wajanawisit	Teacher attached to the Faculty of Nursing	Subcommittee Member
15. Asst.Prof.Mayuree Kaewchantr	Teacher attached to the Faculty of Nursing	Subcommittee Member
16. Pol.Lt.Dr.Jeuajian Charoenbhakdi	Teacher attached to the Faculty of Nursing	Subcommittee Member
17. Dr.MT.Worachote BoonSriwong	Teacher attached to the Faculty of Medicine	Subcommittee Member
18. Dr.Prateep Panya	Dean, Faculty of Nursing	Subcommittee Member
19. Dr.Suvimon Sanveingchan	Teacher attached to the Faculty of Nursing	Subcommittee Member
20. Dr.Arpakorn Preawnim	Teacher attached to the Faculty of Nursing	Subcommittee Member
21. Dr.Sudruk Chitthairatt	Teacher attached to the Faculty of Nursing	Subcommittee Member
22. Dr.Nopparote Wongphatctharajarus	Teacher attached to the Faculty of Public Health	Subcommittee Member
23. Dr.Supakorn Sukprasit	Teacher attached to the Faculty of Public Health	Subcommittee Member
24. Mrs. Saijai Pinijvechakarn	Teacher attached to the Faculty of Public Health	Subcommittee Member

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2. Assoc.Prof.Dr.Wonpen Keawpan	Mahidol University	Subcommittee Member
3. Assoc.Prof.Dr.Sutteeporn Moolsart	Sukhothai Thammathirat	Subcommittee Member

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17. Dr.Yang Lili	School of Stomatology Kunming Medical University	Subcommittee Member
18. Dr.Kanitnan Sunanta (D.D.S)	Department of Dentistry Sanpatong Hospital	Subcommittee Member

### Duties and Responsibilities

1. Conducting peer reviews of all proposed research works – both oral presentation and the presentation in the form of poster display.
2. Reporting the results of peer reviews of the editors nation and the symposium organizing committee.

### 5. Financial Committee

1. Assoc.Prof.Dr.Prapaisri Holomyong	Head of the English Department	Chairperson
2. Dr.Natcha Krimjai	Acing,Director of Research Office	Committee Member
3. Dr.Sutthapat Amornruangtrakool	Director of Personnel director	Committee Member
4. Miss Paweerisa Sirakuprasert	Director of the Bureau of Budget and Finance	Committee Member
5. Mrs.Pranee Thongsrisuk	Director of Audit Department	Committee Member and Secretary
6. Miss Kuntinun Jitraoon	Staff Member of the Research Office	Assistant secretary

### Duties and responsibilities

1. Making a report on receipts and expenses regarding the arrangement of the symposium.
2. Registering the participants and giving receipt slips to them.
3. Checking the expenses thoroughly.

