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TABLE OF CONTENTS

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EDITORIAL

It is my proud privilege to welcome you all to the IASTEM International Conference at Kyoto, Japan in association with The IIER. I am happy to see the papers from all part of the world and some of the best paper published in this proceedings. This proceeding brings out the various Research papers from diverse areas of Science, Engineering, Technology and Management. This platform is intended to provide a platform for researchers, educators and professionals to present their discoveries and innovative practice and to explore future trends and applications in the field Science and Engineering. However, this conference will also provide a forum for dissemination of knowledge on both theoretical and applied research on the above said area with an ultimate aim to bridge the gap between these coherent disciplines of knowledge. Thus the forum accelerates the trend of development of technology for next generation. Our goal is to make the Conference proceedings useful and interesting to audiences involved in research in these areas, as well as to those involved in design, implementation and operation, to achieve the goal.

I once again give thanks to the Institute of Research and Journals, IASTEM, The IIER for organizing this event in Kyoto, Japan. I am sure the contributions by the authors shall add value to the research community. I also thank all the International Advisory members and Reviewers for making this event a Successful one.

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NON-RIGID OBJECT SEGMENTATION BASED ON DISTANCE TRANSFORMATION

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Abstract - As the meat intake increases, the demand for broiler poultry also increases every year. Broilers used for cooking are shipped before they are fully grown, and there is small weights difference depending on the kind of dish. Thus the breeder must check from time to time whether poultry are grown to the target weight. However, frequent contact reduces the growth and quality of poultry, and pollutants in enclosed spaces adversely affect the health of the breeder. Therefore, it is necessary to measure the weight without directly contacting with poultry. However, it is difficult to know the average weight of the poultry because there is a problem to segment each object due to the nature of the poultry which is always massed. In this paper[1], we propose a non-rigid algorithm for segmenting gathered poultry. This algorithm detects the number of poultry by calculating the center of poultry through Mean-shift clustering, and it is expected to be used for poultry automation with accuracy of 91.17%.

Index Terms - Poultry automation, Object detection, Object segmentation, Mean-shift

I. INTRODUCTION

As meat consumption increases in worldwide, the consumption of broiler poultry also has been increasing. In Korea, chickens and ducks are mainly consumed, and the consumption of chicken per capita is about 13.8Kg per person in a year, which means that the consumption of chicken is much higher. There are twelve species of broiler chickens consumed in Korea. The difference in weights between cultivars is 100g, and the difference in breeding period is small. Thus poultry farmers need to constantly observe whether their poultry are grown to the target weight. However, frequent contact reduces the growth and quality of poultry, and pollutants in enclosed spaces adversely affect the health of the breeder. Therefore, they need a system that minimizes contact with poultry and automates the poultry breeding environment so that the breeder does not enter the poultry facilities.

Although it is most effective to use a camera and a scale to measure the weight without contacting the poultry, it is difficult to measure the weight of poultry separately. Therefore, it is alternative to detect the number of poultry in a specific area and to recognize the weight and measure the average weight.

The poultry tends to move together and take a rest on the scrum. This phenomenon is equally shown on the scale, and it makes difficult to detect the number of poultry by the naked eyes. If the number of poultry is detected incorrectly, the average weight will have an error, making it difficult to determine the shipment date. For this reason, in this paper, we propose an object segmentation algorithm to detect the number of poultry on the scale after the image is correctly processed based on the poultry density in the ROI.

The proposed algorithm uses a scale and an IP camera to detect the weight without contacting the poultry. Binarization was used to separate poultry from the scale board, and the distance transform is applied to shade the object outline and brighten object center. After detecting the brightest part by Mean-shift clustering, each object was segmented by merging the mode based on the object size.

This paper is organized as follows. Section 2 describes how to segment the each poultry on the scale. Section 3 describes experiments and results of the proposed algorithm. And then Section 4 presents conclusions and future research directions.

II. NON-RIGID OBJECT SEGMENTATION ALGORITHM

The non-rigid object segmentation of poultry is proposed in the following order.

A. Pre processing Input Image

On the scale, where is a poultry detection area, there are many noises due to contaminants such as feces, dust, and sawdust which are generated during the breeding process, and they make difficult to segment poultry from the scale board due to similar brightness. To remove these noises, we apply Gaussian blur. After then, the stretching algorithm is applied to increase the accuracy of binarization by increasing the contrast between the scale board and the poultry. Finally, the binarization is performed after transforming the stretched image into a LUV color space which has wide range of brightness values.

This work was supported by the Industrial Convergence Core Technology Development Program (No. 10048474) funded by the Ministry of Trade, Industry and Energy (MOTIE) of Korea. It was also supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Science, ICT & Future Planning (No 2017R1A2B4012886).

B. De-noising

In order to clarify the results of the distance Transform, we reduce noises that have not been removed in the preprocessing step. And small white spots are removed by the Opening operation, and small black spots in the poultry area are filled by the hole filling operation as shown in Fig. 1.

(a) (b) (c)

Fig. 1. (a) Binarization result, (b) After Opening result, (c) After Hole filling result

Fig. 2. Result of Distance transform

C. Distance Transform

In order to estimate the center of the each poultry through Mean-shift clustering, the distance transform algorithm is applied to the binarization image to brighten the center of the poultry and shade the border. However, when the poultry are attached to each other, or when several poultry are gathered together, they are expressed like the contours of mountains shown in Fig.2.

D. Mean-shift Clustering

Mean-shift clustering is applied to search for the center of poultry expressed brightly to catch the local maximum. The initial points are clustering are arranged at regular intervals along the edge line on the binarized image before applying the distance transform. The Mean-shift operation that moves to the bright direction in the window area from the initial point is repeated until reached to the local maximum shown in Fig.3.

E. Estimate Poultry Size

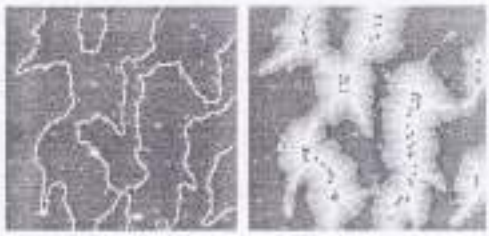
The size of the poultry is estimated to segment adjacent poultry before merging modes gathered at the local maximum through the clustering method. And the merging method saves distances from all modes to the initial point in the array. Any distance r is voted to the radius r_n if there are black pixels more than one half of pixels passing through the circumference of the circle which center is the one of modes and radius is r_n. The voting method at all initial points is used to determine the highest r_n as the poultry radius.

F. Modes Merging and Non-rigid Object Segmentation

Based on the estimated radius, the poultry are segmented or merged considering the adjacency between modes and the number of adjacent modes.

Table 1. Candidates of radius

n	0	1	2	3	4	5	6	7
r	32	36	40	44	48	52	56	60
n	8	9	10	11	12	13	14	
r	64	68	72	76	80	84	88	



(a) (b)

Fig. 3. (a) Canny edge and initial point, (b) Result of Mean-shift clustering

Merging process consists of two steps as shown in Fig. 4 and Fig. 5. The first merging step is based on the estimated radius r_n. And the second merging step considers number of modes contained in the candidate object that are adjacent but not merged. The first merge is performed when the distance between two modes is less than the radius r_n, the distance between modes is smaller than the diameter, and the absolute value of the difference between the diameter and mode is larger than 1/2 of the radius. The second merge is performed to prevent the head or tail of the poultry from being detected as a candidate object in the first step. This is done for candidates whose distance from the center of the candidates object is shorter than the diameter. As shown in the Fig.4, candidate objects

two candidate objects are merged into one candidate object having a mode higher than the threshold value. Conversely, they are not merged if both candidate objects has mode more than the threshold value shown in Fig. 5

Fig. 4. Condition of merging step1

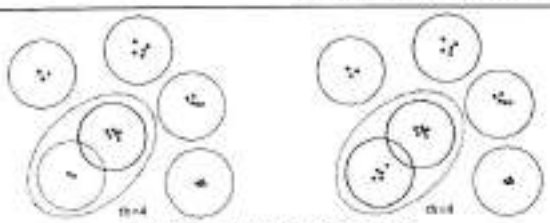
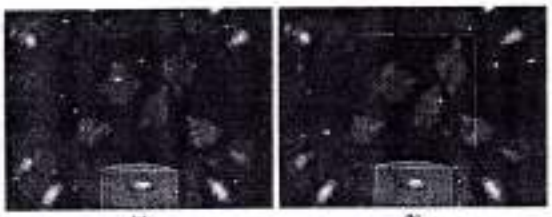


Fig. 5. Condition of merging step2



(a) (b)

Fig. 6. (a)Source Image, (b) ROI of scale board

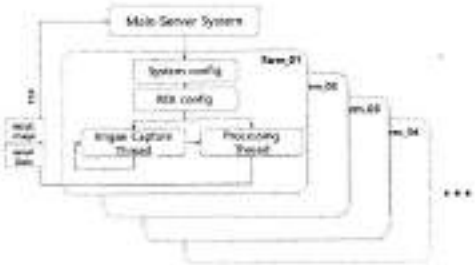


Fig. 7. Flow chart of proposed algorithm

III. EXPERIMENTS AND RESULTS

In this paper, we proposed the non-rigid object segmentation algorithm to segment the gathered poultry. This algorithm proceeds in the following order. First, the binarization algorithm is used to separate the scale board and poultry. The distance transform is executed before detecting the center of poultry by Mean-shift clustering. Based on object size, modes from Mean-shift clustering are merged. In order to evaluate the proposed algorithm, we installed IP camera and scales with ramps and walls on the poultry facility shown in Fig. 6(a).

A. Experimental Environment Setting

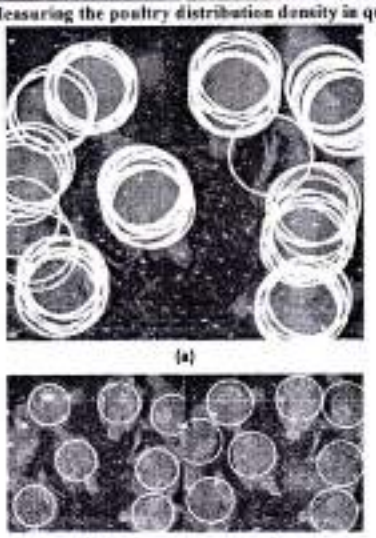
We chose a wireless IP camera considering mobility and scale board set to black color. There is a problem in binarization due to the shadow caused by the light source when acquiring the image from the camera. To solve the shadow problem, the camera was converted to the Infrared light mode. The image captured from IP camera is a single channel greyscale image with 800 x 600 resolution. The non-rigid object segmentation is executed after setting initial points. In addition, the ROI image is divided into 4 regions as shown in the Fig. 8, and then object segmentation is performed only when the density of poultry is less than 60% in each area.

The experiments were progressed on actual chicken farm, and the performance of the algorithm was evaluated with respect to images collected for 25 days.

B. Algorithm Flow Chart

Flow chart of proposed algorithm is shown in Fig. 7. We composed multi-thread program to consider multiple cameras on multiple facilities. Each thread performs a poultry object segmentation algorithm. After detecting them, source image and result image are transferred to FTP server to save them.

Fig. 8. Measuring the poultry distribution density in quadrant



(a)

(b) (c)

Fig. 9. (a) Circles that can be center of poultry, (b) Result of merging by Gaussian distribution, (c) Result of merging by proposed merging method

Table 2. Experiments Result

Images	Correct	Accuracy
600	547	91.17

C. Performance Evaluation of Proposed Algorithm

The performance of proposed algorithm was conducted on 600 images. The biggest problem in the algorithm development is to segment poultry that are excessively gathered together. If the poultry cannot be segmented, it is also difficult that the mean-shift clustering algorithm collects its modes to the center of the each poultry. The Fig. 9(a) shows circles that are

on center of the poultry in an image that is not segmented yet. Fig. 9(b) shows the result of merging the circles using Gaussian distribution. As shown in Fig. 9(b), poultry was not detected in the low mode distribution area. Fig. 9(c) and Table.2 show results of the proposed segmentation algorithm.

The proposed algorithm showed high accuracy in low poultry density as shown in Fig. 10, but it showed low accuracy in the case of the heavy contamination and the excessive density of poultry on the scale board as shown in Fig. 11.

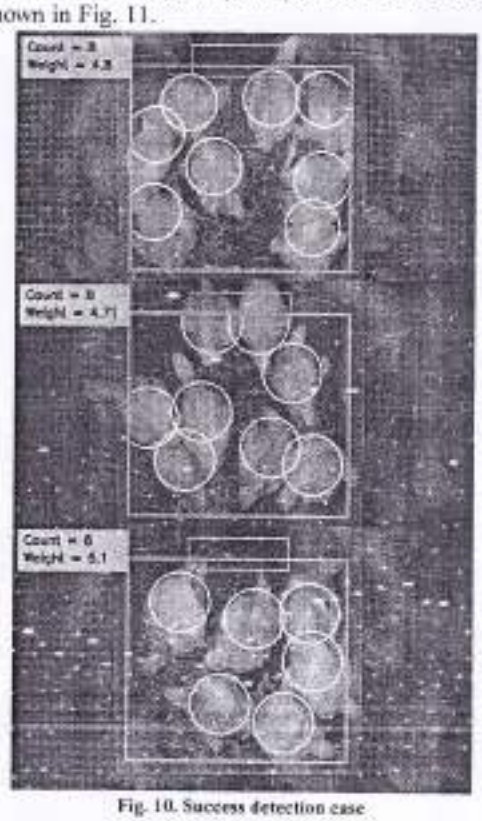


Fig. 10. Success detection case

Although the processing time varies depending on the area of poultry on the scale board, the average processing time is 270 ms per frame.

CONCLUSION

In this paper, we proposed non-rigid object segmentation algorithm for a poultry automation system that can determine the shipment date of poultry without direct contact between poultry and breeders. For the reliability of the proposed algorithm, we excluded non-segmentable image which is not satisfied the criterion.

And we applied the distance transform and Mean-shift clustering to estimate the center of poultry. After then, we segmented the gathered poultry from the scale and merged the clustered modes based on poultry size. The accuracy of the proposed algorithm is 91.17%. Since the experiments were conducted at the actual poultry farm, it can be applied directly to poultry farms where automation is required.

In the future, it is necessary to study how to effectively segment the gathered poultry by deep learning classifier using inherent feature of poultry, and to improve the processing speed and the algorithm to be applicable to various environments.

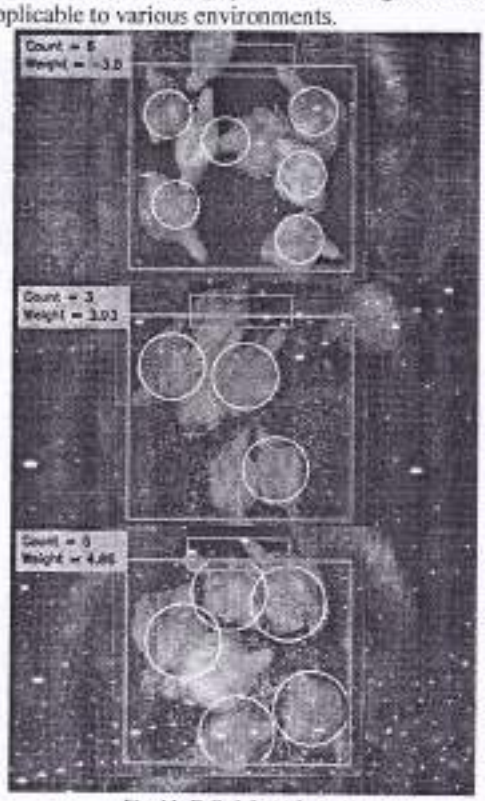


Fig. 11. Failed detection case

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IMPLEMENTATION OF IMAGE-BASED WATER LEVEL MEASUREMENT SYSTEM

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Abstract – In recent years, it is important to measure the level of water due to frequent floods and localized heavy rains. However, the recent observations of water level depend on manpower.Therefore, we developed a system that automatically observes the river level to prevent disasters and reduce costs. In this paper, we describe a method of measuring the water level by recognizing the ruler that appears at different size and at arbitrary positions in the image. That is, only the region with ruler is extracted through the image processing step and scalenumberson the ruler are recognized by ANN(Artificial Neural Network) classifier. The resultsshowed the superiority of the proposed method by comparing the integral channel feature with other one.

Index Terms - Water level measurement, Integral channel features, Adaboost

I. INTRODUCTION

It is becoming important to measure the water level due to frequent floods and localized heavy rains in recent years. However, the water level observation of the river has depends on the monitoring by manpower. By automating a series of processes to measure the water level, it is easy to prevent disasters such as river flooding, and the cost due to manpower can be also reduced if the water level change is automatically recorded. In addition, it is necessary to develop a system that automatically observes the river level in accordance with the recent trend of increasing importance of data collection.

In this paper[1], we find the ruler at arbitrary position in the water level image using Haar-like feature, and then find the boundary of the water surface using the integral channel feature [3].Finally, thewater level is measured by separating the ruler and recognizing the number.

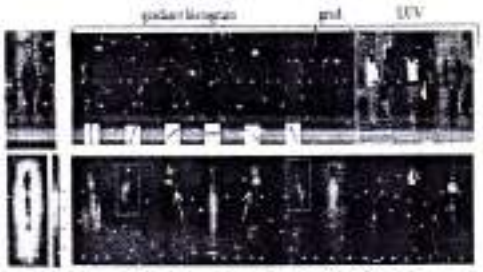

Figure 1. Visualization of integral channel features

In Section 2, we describe the features and classifiers used in water level measurement system and explain how to roughly specify the position of the ruler using it. In the last Section 3, we will show the result of comparison with the proposed method and other methods.

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II. PROPOSED METHOD

A. Integral channel feature extraction

Integral channel features are used to specify the boundary of the water surface.In the case of HOG [1] or Haar-like features, a single channel is used, whereas the integral channel feature uses a variety of channels such as R, G, B, Gray, Edge, Gradient magnitude and gradient histogram.

In this paper, we use 10 channels of L, U, V, Gradient magnitude and a gradient histogram with 6 bin. The sum of arbitrary pixel values is obtained from ten channels andused as a feature value. Finally, the feature vectors are learned by the Adaboost.

B. Adaboost classifier

In this paper, the feature is learned by Adaboost [2] and to determine the water level and the position of the ruler. The Adaboost algorithm generates a strong classifier that combines several weak classifiers with higher performance.The weak classifierreduces the weights of correctly classified samples, and increases the weights of misclassified samples. The strong classifier consists of a combination of several weak classifier as follows.

The weak classifier used to generate classifier is represented by the following (1).

$$h_j(x) = \begin{cases} 1 & p_j f_j(x) < p_j \theta_j \\ 0 & \text{otherwise} \end{cases} \quad (1)$$

In(1). $f_j(x)$is a function representingjth feature value of the training samplex. θ_j is a jth threshold and p_j is a parity that determines the sign.The weak classifier in (1) represents the classification result as 1 or 0.

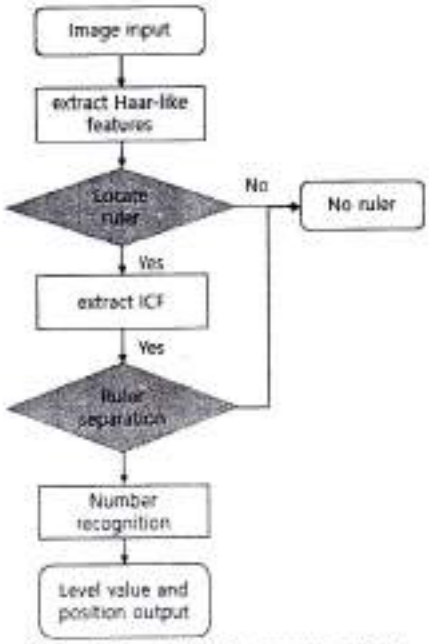


Figure 2. Flowchart of the proposed method

Figure 3. Approximate location of the ruler

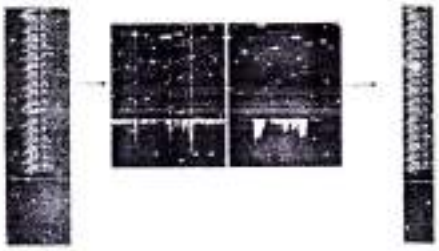


Fig.4. Detecting the ruler region using x-coordinate projection histograms

C. Level measurement system using optimal multi-classifier

The flowchart of the proposed method in the paper is shown in Fig 2. When the input image arrives, the approximate position of the ruler in the image is determined by using anAdaboost classifier that has learned the Haar-like feature of the ruler. This area is set as the region of interest. The x-coordinate projection histogram in the region of interestis used to leave only the part of the ruler that removed the background. The boundary between the water surface and the ruler is found by the classifier that has previously learned boundaries between the water surface and the ruler. In the separated ruler, only numerical regions are extracted through the segmentation algorithmand transferred to the ANN (Artificial Neural Network)'sinputin order to recognize the numerical value in the ruler [4].

C-1) Haar-like feature based ruler region detection

Step 1. To extract the Haar-like feature, a certain area of the image is scanned using the sliding window method, and the extracted feature is transferred totheAdaboost classifier to distinguish whether or not the corresponding window is a ruler area.

Step 2. The approximate position of the ruler is set as the region of interest. This region of interest is used to rotate the image, which is needed for cases where the ruler is not standing perpendicular to the water surface. First, Canny edge detector is applied to the region of interest[5]. Then, a straight line is detected by applying Hough transform to the image that edge lines are extracted [8]. The most voting straight line is selected to find the angle to be rotated, and the image can be rotated as follows:

$$\tan\theta = \frac{dy}{dx}$$
$$\theta = \tan^{-1}\frac{dy}{dx} \times \frac{180}{\pi} \qquad (2)$$
$$\theta' = \frac{\pi}{2} - \theta$$

where the angleθcan be calculated by selecting two pixel positions on the selected straight line. Here, dy is the difference between the y coordinates of the two pixels, dx is the difference between the xcoordinates of the two pixels, and θ' is the angle at which to be rotated.

Step 3.After generating x-coordinate projection histograms of the binary image and Canny edge image in the region of interest,the ruler region is found in detail by sequentially applying the threshold values as showed in Fig. 4.

The first binary image is generated by applying an adaptive threshold[6]. And then, the image is applied to the erosion operation using a horizontal mask[9]. Thesecond binary image with only the vertical edge component is obtained by subtracting the first binary image from eroded image. A y-coordinate projection histogram of the imageis generated. Finally, the region that exceeds the threshold value in the y-coordinate projection histogram is defined as the ruler region.

C-2) Adaboost classifier based water level detection

When the area of a specific ruler is given through c-1 process, a boundary between the ruler and the water surface is searched using anAdaboost classifier that has been learned beforehand. At this time, the ICF(Integral Channel Feature)extracted through the sliding window method is transferred to the classifier input. The boundaries between the ruler and the water surface are used as the learning data. unlike the case of the previous rough position of the ruler. And the learning data should include ones from the contaminated ruler. Then, the number area for digit recognition is extracted.

Then, only the ruler part is set as the region of interest

from the boundary position founded through the classifier. And like Fig 5 (a), the binary image of the ruler image is obtained using an adaptive threshold algorithm. To extract the scale from the binary image as shown in Fig 5 (b), the erosion operation with the horizontal direction mask is applied.

(a) (b)

Figure 5. (a) Binary image applied daptive threshold (b) Scale extraction image by erosion

(a) (b)

Fig. 6. Numerical Candidate region and segmentation

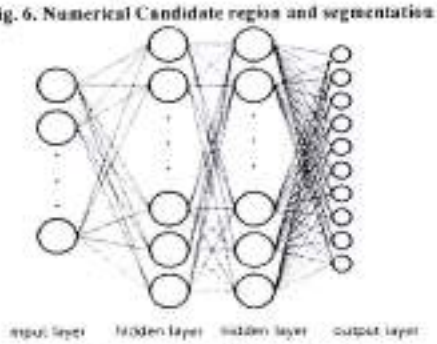


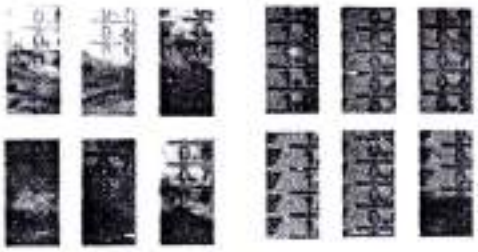
Fig. 7. Structure of artificial neural network

As shown in Fig. 6, the numerical candidate region can be selected near the position of the extracted scale, and only the numerical region is extracted by a segmentation algorithm.The extracted numerical area is recognized through the ANN(Artificial Neural Network) [4].When the number is recognized by the ANN classifier, the final water level value can be measured.Our artificial neural network for numerical recognition consists of an input layer, a hidden layer, and an output layeras shown in Fig 7.First, 1064 one-dimensional array of numeric images normalized to 28x38 sizesis transferred to the input layer.The hidden layer consists of two layers, each layer consisting of 100 neurons.Finally, the output layer is composed of 10 neurons, and the result between 0 and 9 calculated through two hidden layers in each neuron is shown as a probability.

III. EXPERIMENTAL RESULTS AND ANALYSIS

A. Experiments

The experimental environment is as follows. The images are given sequentially, and the ruler in the image appears at a different size in any position. At this time, the size of the ruler does not change greatly. Also, the experiment is conducted in an environment where only one ruler perimage is displayed.



(a) (b)

Fig.8. Example of database for water level detection

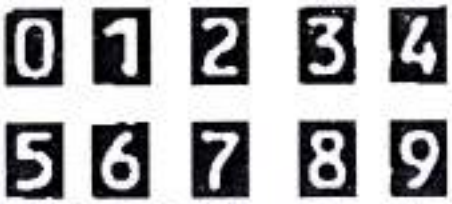


Fig. 9. Example of database for numeric recognition

The training data was then generated from the accumulated data over two years. To find the approximate position of the ruler, we trained the classifier using 1452 ruler images and 4072 background images. And the Adaboost classifier used to find the boundary between the ruler and the water surface used 1560 boundary images and 4563 background images. Also, learning of the artificial neural network for numerical recognition was done by using 300 number images as shown in Fig 9.

The parameter values used in the experiments were found experimentally different from the previous experiments. First, the number of dimensions of the integral channel feature is 1000, and the number of weak classifiers used in Adaboost learning is about 800. Although the number of weak classifiers exceeds 800, performance has not improved much.

Performance evaluation of the proposed method was performed in the environment of Intel i7-2600 CPU @ 3.40GHz, 16GB DDR3 RAM, and HOG and Harr-like features were used as parameters commonly used. The experiment was performed on a 1920x1080 image.

We performed the processing time and performance experiment to compare the integral channel feature and the conventional one.The recognition criterion was based on the comparison of the water level with the ground truth. The processing speed was calculated by calculating the processing speed of all the verification images and averaging.

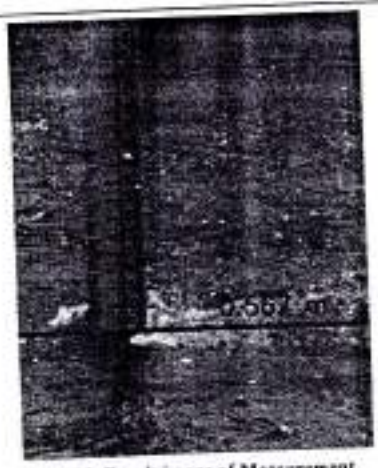


Fig.10. Result image of Measurement

Table 1. Performance comparison

	Haar-like	HOG	Proposed method
Test image	1772		
True Positive	1647	1719	1751
False Positive	125	53	21
Accuracy	92.9%	97.0%	98.8%

Table 2. Processing time comparison

	Haar-like	HOG	Proposed method
Test image	1772		
Average detection time	0.041ms	0.072ms	0.108ms

Table 3. Ruler split success rate

	Sobel	Canny	Adaptive threshold	Proposed method
Test image	1772			
Failure	121	56	85	2
Success	1651	1716	1687	1770

B. Analysis

In Table 1 and Table 2, the result of the Haar-like feature shows the fastest processing speed but the low recognition rate, and the integral channel feature showed the slowest but the best recognition rate. The HOG feature showed a medium performance between recognition rate and processing speed. Based on the results, it is found that the best method is to use the integral channel features with high recognition rate although there is no significant difference in speed.

Table 3 shows the success rate for each image when creating the histogram image and extracting the ruler by applying the threshold value. Sobel [7] has the worst performance in extracting the most of rulers. Canny and binary images show slightly better performance, but each performance is still insufficient to apply. The proposed method shows that the success rate of the ruler is the highest.

CONCLUSION

In this paper, we have studied the development of a system that can automatically detect the water level of a river without manpower monitoring, prevent the disasters such as abnormal weather and flood which are frequently occurring recently, and automatically detect the water level with low cost and high efficiency. The system used Integral Channel Feature that outperforms traditional HOG and Harr-like features.

Experimental results showed that the position of the ruler and the water level of the river can be detected with high recognition rate through the integration channel feature and the Adaboost classifier, and the river level can be measured through the ANN classifier automatically.

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MEASURES OF SET-BACK CONTROL IN ACCORDANCE WITH THE HEAT STORAGE FUNCTIONS OF OFFICE BUILDINGS

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Abstract - Setback control is an HVAC control method to conserve energy in heating or air conditioning. Peak shaving through night setback control during winter months when heating is used not only affects energy conservation in a building but also the energy supply infrastructure. In order to apply appropriate setback control, affecting factors according to the characteristics of the building must be taken into account. As such, this study presents an optimal setback control method according to the heat storage function of office buildings. A test of the function of the suggested setback control was conducted using EnergyPlus, an energy analysis program. For the analysis model, a small office among the DOE reference model was used. Depending on the control method, they were categorized into no setback model, typical setback model, and set temperature reset model. The thermal mass in each model changed depending on the location of the thermal insulating material of the structure. For the set temperature reset model, a separate set-back operation time was set. The analysis results show that the thermal mass, in accordance with the location of the thermal insulation material, is a factor affecting the zone air temperature. The suggested model, when compared to the typical setback model, had a smaller peak load and monthly energy usage, and called for a different control method depending on the heat capacity.

Index Terms - Thermal mass, Set-back, Control, Peak shaving

I. INTRODUCTION

According to the 5th assessment report by the Intergovernmental Panel on Climate Change (IPCC), global warming caused by greenhouse gases (GHG) will continue [1]. Concerns over the strict regulations of emissions and climate change have led to the emergency of new technologies and methods [2]. Among them, the building sector that account for 35% of total worldwide energy consumption, is a critical element that must be taken into account [1].

In Korea, approximately 22.3% of total energy consumption occurs in residential and commercial categories [3]. In particular, energy consumption of commercial or public service buildings account for 9.5%, and energy consumption for heating or air conditioning take up a high share of 56.7% of total energy consumption [4]. While studies have been conducted on the various control methods to reduce energy consumption in buildings, more than approximately 39% of energy consumed in the HVAC system is being reported as wasted energy due to inefficient system operation during unoccupied periods [5]. This is the result of operations that do not take into account the characteristics of each building, and thus calls for appropriate control through clear analysis of buildings.

Set-back control is a control measure to reduce energy consumption and peak shaving through appropriate heating or air conditioning during unoccupied periods in the day time or night time [3]. According to preceding studies, when set-back control is applied, 28.2% of heating energy and 9.5% of air conditioning energy in cold climates, and 53.0% of heating energy and 16.9% of air conditioning energy in a hot and humid climate can be saved [6] – [7].

Many preceding studies have been carried out on measures to conserve energy using set-back control. However, most of them analyzed the amount of energy saved during the setback period or due to changes in set temperature in residential buildings. While it is clear that energy is conserved using this method, studies on control methods that take into account the characteristics of the building are still lacking. As such, this study sought to identify set-back control measures in accordance with heat storage functions of office buildings in the winter.

II. METHOD AND SCOPE

This study was analyzed using a simulation. The energy analysis tool for buildings, EnergyPlus was used. Independent variables were thermal mass, set temperature, and control time, while the output analyzed was zone air temperature, surface temperature, and zone heating rate.
The study was conducted in the following order.

- Analysis of non-heated, non-air conditioned status to analyze the thermal characteristics of a building.
- Analysis of heat storage functions of buildings through no set-back.
- Comparison of control functions taking into account typical control and heat storage functions.

III. SIMULATION

A. Description

The simulation test model was a small office among the DOE-reference models. Figure 1 shows the exterior of the test model, and Table 1 shows the characteristics. The test model is a flat-roof, one story building in a simple rectangular shape. In this simulation, the roof and floor

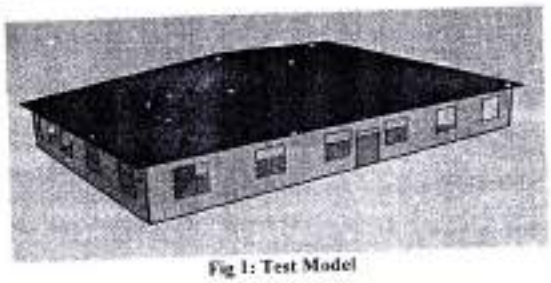

Fig 1: Test Model

Table 1. Simulation Model Overview

Building Description	
Data Source	2003 CBECS, ASHRAE Small Office 30% Advanced Energy Design Guide
Principal Building Activity	Office
Total Floor Area	511㎡
Number of Floors	1
Floor to Ceiling Height	3.1m
Construction Type (External Wall)	Mass wall
Construction Type (Roof)	Attic
Foundation Type	Mass Floor
HVAC	Ideal Load
Infiltration Rate	1 ACH
Weather Data	TMY2 data for Seoul, South Korea latitude: 37.56_N, longitude: 126.98_E

were considered to be adiabatic, and thus the solar heat gain of the flat roof was not taken into account. Analysis was conducted during the winter season (i.e. January) and the weather data for Seoul, Korea, were used.

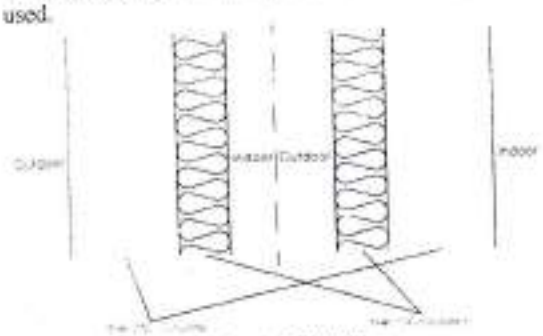

Fig 2: Exterior Wall Types

B. Simulation Case

The simulation case used for analysis can be categorized into two types of case as seen in Figure 2, depending on the location of the insulating material. The structure according to the thermal insulating material was considered to be a thermal mass in the zone analyzed. Cases according to the control method were categorized into three: no set-back, typical set-back, and set temperature reset.

III. ANALYSIS

A. In a condition of no air conditioning

To verify the thermal characteristics of the building, the zone air temperature was analyzed without control.

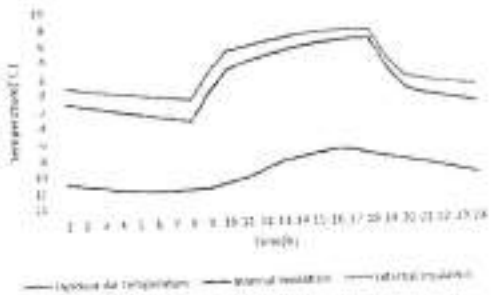

Fig 3: Temperature Changes according to the location of the thermal insulation

Figure 3 is a chart that shows the temperature changes according to the location of the thermal insulating material. In both cases, there was a pattern similar to the temperature changes in the external air. The case where the thermal insulating material was in contact with external air had a relatively higher temperature.

B. Comparison of typical control and set temperature reset

For typical control, the temperature was set for night time when it was unoccupied, at 15.6 degrees. As seen in Figure 4, the heating rate during night time was relatively lower in the case with thermal mass.

Fig 4: Heating Rate during Night Time

In contrast, the peak load was relatively higher in the case with the thermal mass. The set temperature reset has two variables. The first is the change in night time set temperature by ±1 degrees from the basis point of

15.6 degrees. The second is the point where the temperature starts to rise for peak shaving. In the case without thermal mass, when the set-point temperature was controlled to be 14.6 degrees at 06:00, 17.6 degrees at 08:00 and set-point temperature (22 degrees) starting at 09:00, the energy conservation rate, compared to the typical control was highest at 2.33%. In terms of thermal mass, the energy conservation rate was highest at 3.57% when compared to typical control when it was controlled to be set at 14.6 degrees at 07:00, 17.6 degrees at 08:00 and set-point temperature (22 degrees) starting at 09:00.

CONCLUSION

This study analyzed the thermal characteristics of concluded the set-back control accordingly. As for the thermal mass model, it maintained a relatively higher temperature when there was no air conditioning. In a typical control, the night time heating rate was relatively lower in the case with thermal mass. As for set temperature reset, the energy conservation rate varied depending on the heat storage capacity. The point at which temperature began to rise in the case with the highest energy conservation rate also varied. This indicates that the thermal characteristics of buildings with heat storage are distinct and that they must be taken into account to control when aiming for energy conservation.

Setback control is an HVAC control method to conserve energy in heating or air conditioning. Peak shaving through night setback control during winter months when heating is used not only affects energy conservation in a building but also the energy supply infrastructure. In order to apply appropriate setback control, affecting factors according to the characteristics of the building must be taken into account. As such, this study presents an optimal setback control method according to the heat storage function of office buildings.

A test of the function of the suggested setback control was conducted using EnergyPlus, an energy analysis program. For the analysis model, a small office among the DOE reference model was used. Depending on the control method, they were categorized into no setback model, typical setback model, and set temperature reset model. The thermal mass in each model changed depending on the location of the thermal insulating material of the structure. For the set temperature reset model, a separate set-back operation time was set.

The analysis results show that the thermal mass, in accordance with the location of the thermal insulation material, is a factor affecting the zone air temperature. The suggested model, when compared to the typical setback model, had a smaller peak load and monthly energy usage, and called for a different control method depending on the heat capacity.

ACKNOWLEDGEMENTS

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SATISFACTION OF ENGLISH CAMP III: A CASE OF STUDENTS' CAMP AT HUA-HIN, THAILAND

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Abstract - The English camp was an important training for Thai students to enhance their English ability. The purpose of this research paper was to investigate the level of satisfaction of the students who participated in English Camp III, Hua-Hin, Thailand. The population of this study included all the students of Suan Sunandha Rajabhat University who participated in the training and activities of the English Camp III during September, 2016. A total of 40 students who answered the questionnaire, the collected data was analyzed by using SPSS program. Percentage, Mean and Standard Deviation were utilized in analyzing the data. The findings revealed that the average mean of satisfaction was 4.56, and standard deviation was 0.7901. Moreover, the mean average can be used to rank by using the level of satisfaction from each of the following factors: Gain network and new friends, gain new knowledge, and gain new effective learning method.

Index Terms - Satisfaction, English Camp, English Enhancement.

I. INTRODUCTION

English communication is one of the most important skills and knowledge that modern students need to learn and be certain to improve. The English camp is also the way to train students how to enhance their English communication. The ASEAN Economic Community (AEC) is the single market of ASEAN nations and the formal language to be communicate is English, therefore, business English is very important for all member countries. Therefore, it is necessary for these ASEAN nations to provide sufficient training to enhance their ability of human capital to be able to productive and gain benefits of the coming ASEAN single market [1] [2]. In fact, international organizations are quick to look for the students who are great communicators, visionary thinkers, and these who can get things done and be able to follow through. This means this attribute are desirable in the modern world of business and modern international business and management. Students today are important human capital that must be trained in order to train other people such as staff and students to take full advantage of the coming AEC. Ability in English communication is important for Thai students and Thai faculty members. Surely, many leaders today must have a world class strengths in many areas, therefore, students today who will be the leaders in the future needs to enhance their factors of success, skills, and experiences in order to be successful in the future. Without proper training, they will not have a chance to practice and have most potential for growth.

From this concept, it is imperative that Thailand needs to improve the strengths of quality of education and the ability to understand effective communication to catch up with ASEAN neighbors. The improvement and development of knowledge of communication will assist Thai faculty members to train their students for proper entering the ASEAN market in the near future successfully [3]. There are four basic concepts that students need to learn and be smart with this concept which are trust, compassion, stability, and hope [4]. This research paper was aimed to focus on the level of satisfaction of activities at English camp in order to use the findings to improve the future activities and understanding of the students' improvement in communication in English in the future.

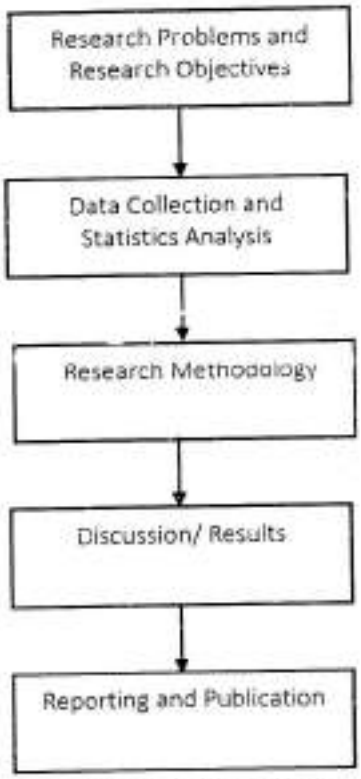

Fig. 1. Framework of the Research Study

II. RESEARCH OBJECTIVES

The aim of this study was to investigate the level of satisfaction of faculty members about the benefits of E-learning they received from enrolling and participating in the ASEAN camp. The purpose of this research paper was to investigate the level of satisfaction of the students who participated in English Camp III, Hua-Hin, Thailand.

III. RESEARCH METHODOLOGY

The population and sample size of this study was all students both Thai students and international students which consisted of 250 respondents who participated in the ASEAN camps in Thailand during the year of 2016. The English camp was set up and was an important training for Thai students to enhance their English ability and capacity. The purpose of this research paper was to investigate the level of satisfaction of the students who participated in English Camp III, Hua-Hin, Thailand. The population of this study included all the students of Suan Sunandha Rajabhat University who participated in the training and activities of the English Camp III during September, 2016. A total of 40 students who answered the questions and list of an open end questions, the collected data and information received was analyzed by using SPSS program. Percentage, Mean and Standard Deviation are the important method of statistics were utilized in analyzing the data. The ASEAN camp at Hua-Hin was selected as a main area of research study for this study because it provided many ASEAN training activities and education. The sample size of was determined by Taro Yamane table [5].

IV. FINDINGS

The major purpose of the finding section in this research paper were to report sample characteristics and the main results of the data analysis from the research questions as well as the level of satisfaction from evaluating the benefits of E-Learning at the ASEAN camp. A demographic profile indicated that more female than male faculty members at the camp and were sampled with a ratio of 75:25. In terms of education level, the Ph.D. group made up 12 percent of the sample population and the Master degree group made up 86 percent, whereas, the bachelor degree group was only 2 percent.

TABLE 1 Level of Satisfaction of English Camp

Satisfaction Items	Mean	S.D.	Rank
1. The satisfaction from topics of study and training.	4.66	0.99876	4
2. The satisfaction from time management.	4.54	0.8917	5
3. The satisfaction from gaining new friends and new networks.	4.77	0.9894	1
4. The satisfaction from gaining new knowledges.	4.75	0.8986	2
5. The satisfaction from gaining new effective learning methods.	4.64	0.7588	3
6. The satisfaction from the quality of services.			
7. The satisfaction from the quality of facilities and equipment.	4.41	0.9844	6
8. The satisfaction from the transportation method.	4.36	0.6998	7
	4.00	0.5874	8

From TABLE 1, the mean score can be used to rank the highest to the lowest concerns as follows: 1) The satisfaction from gaining new friends and new networks, 2) The satisfaction from gaining new friends and new networks, 3) The satisfaction from gaining new effective learning methods, 4) The satisfaction from topics of study and training, 5) The satisfaction from time management. 6) The satisfaction from time management, 7) The satisfaction from the quality of facilities and equipment, and 8) The satisfaction from the transportation method.

V. LIMITATION AND FUTURE STUDIES

The main limitation of this paper came from small population and sample group which only 250 respondents of students in one ASEAN camp which may not represent all the other participants in the other ASEAN camps. As a consequence, the findings may not be proper to generalize. Therefore, future research should use more respondents with random sampling to get more variety of people from all the camps. Also, future studies should cover not only the level of

satisfaction in the benefits but also the reasons that participants were satisfied or were not satisfied with each benefits of English communication in each category (Wongleedee, 2013).

CONCLUSIONS

From the study of investigation of the level of satisfaction. In general the overall satisfaction were rarted very high in each categories. The findings can be summed up that the average mean of satisfaction was 4.56, and standard deviation was 0.7901. Moreover, the mean average can be used to rank by using the level of satisfaction from each of the following factors: Gain network and new friends, gain new knowledge, and gain new effective learning method.

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SUCCESS LEVEL OF ENGLISH COMMUNICATION BY STUDENTS AT ENGLISH CAMP

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Abstract - There were two purposes of English Camp for Thai students. First was to understand basic information of world community and to allow Thai students to communicate in English. The population of this study included all student participated in the English camp during the December of 2017. This was a qualitative research method. By utilizing the focus group and an in-depth interview, the findings revealed that the success of level of English communication depended on many important factors: Policy of the English camp, Students' ability to use English, the training format, and the ability of the trainers.

Index Terms - Success, English Communication, English Camp.

I. INTRODUCTION

Nowadays, it is important for Thai students to be able ot communicate in English to the world (Wongleedee, 2013). Every day and every step toward the ASEAN Economic Community (AEC) is important for Thai students to improve their level of communication in English and actually it is important for all member countries. Therefore, it is imperative to training our students as a gold human capital to be able to reap the benefit of the coming AEC. Thailand Higher educational institutions have a vital aim that their faculty members and students of many universities of Thailand must be able to fully take advantages of this vital educational opportunity [1] [2]. These faculty members as well as students are important human capitals that should be trained regularly in order to be proficiency to take full advantage of the coming AEC. In fact, English communication is known to be important for Thai students and Thai faculty members. However, E-Learning of English is also an important technology of learning to be implemented to Thailand in order to take the advantage of this effective technology.

From this concept, it is imperative that Thai students need to improve the quality of education and the ability to understand E-Learning of English to catch up with ASEAN neighbors. The improvement of knowledge of E-Learning English technology will help Thai students to enter the ASEAN market successfully [3]. The Centre for ASEAN Studies and Training was assigned to set up the ASEAN English camp to train students to understand about the future skills and knowledge based on English communication. There are many benefits of implement E-Learning English. For example, it can be cost reduction and time saving to deliver the knowledge to a large size classroom than traditional based classroom training. The classroom learning changed to be E-learning could be a huge cut of time and money [4]. This paper was aimed to focus on the level of success and satisfaction of activities of E-Learning set up by Centre of ASEAN Studies and Training in order to use the findings to improve the future activities and understanding of E-Learning English in the future.

II. METHODOLOGY

The purposes of this research was to investigate the level of success and satisfaction of students about the benefits of E-learning they received from enrolling and participating in the ASEAN camp. The population and sample size of this study was all students which consisted of 200 respondents who participated in the ASEAN camp II in Thailand during December of 2017. The ASEAN camp at Pattaya, Chonburi Province was selected as a main area of research study for E-Learning English because it provided many ASEAN training activities of E-Learning English. The sample size of 20 respondents was chosen for qualitative study [5]. Since there were limited numbers of respondents, the number 15 students was chosen from the total population. The data collation was performed via an English questions to elicit respondents' opinion about the benefits of E-Learning English. There are three parts to the questionnaire. Part one was about the demographic information. Part two was about level of success and satisfaction in the benefits of E-learning and part three allowed respondents to provide their ideas and comments at their free will. The validity of each question in the questionnaire was tested using Item-Objective Congruency or IOC index [6].

III. FINDINGS

In order to find the answer for research questions, the major purpose of the finding section in this research paper were to report the 20 sample characteristics of the students selected from the camp and the main

results of the data analysis from the research questions as well as the level of success and level of satisfaction from evaluating the benefits of E-Learning at the ASEAN camp. A demographic profile indicated that more female than male students members at the camp and were sampled with a ratio of 75:25, or 15 female students and 5 male students. In terms of education level, the first year group made up 50 percent of the sample population and the second year group made up 25 percent, whereas, the third year and fourth year group was the rest of 25 percent.

TABLE 1 - Level of Satisfaction from the Benefits of E-Learning

Benefits	Mean	S.D.	Rank
1. The benefit of E-learning is clearly the lower costs of implementation.	4.75	1.1940	1
2. The benefit of E-learning is clearly the less time consuming and difficulty in using.	4.64	0.8917	2
3. The benefit of E-learning is clearly faster delivery in the classroom.	4.56	0.5894	3
4. The benefit of E-learning is clearly more effective learning.	4.42	0.8669	4
5. The benefit of E-learning is clearly lower environmental impacts.	4.34	0.7567	5
6. The benefit of E-learning is clearly the quality of knowledge received by learners.			
7. The benefit of E-learning is clearly the individual attention and self-progress.	4.21	0.7444	6
8. The benefit of E-learning is clearly the more variety of knowledge.	4.04	0.6178	7
	4.00	0.5874	8
All categories	4.37	0.7810	

From TABLE 1, the mean score can be used to rank the highest to the lowest concerns as follows: 1) The benefit of E-learning is clearly the lower costs of implementation, 2) The benefit of E-learning is clearly the less time consuming and difficulty in using, 3) The benefit of E-learning is clearly faster delivery in the classroom, 4) The benefit of E-learning is clearly more effective learning, 5) The benefit of E-learning is clearly lower environmental impacts. 6) The benefit of E-learning is clearly the quality of knowledge received by learners, 7) The benefit of E-learning is clearly the quality of knowledge received by learners, and 8) The benefit of E-learning is clearly the more variety of knowledge. Also, the mean score of all categories is 4.37 with standard deviation of 0.7810 which indicated that the average level of satisfaction is high and the benefits of E-Learning can be considered high benefits. However, the lowest scores of the variety of knowledge indicated that more can be done in regards to these benefits as well as individual attention.

IV. LIMITATION AND FUTURE STUDIES

The main limitation of this paper came from sampling only 20 respondents of student members in one ASEAN camp which may not represent all the other participants in the other ASEAN camps. As a consequence, the findings may not be proper to generalize. Therefore, future research should use at least 400 respondents with random sampling to get more variety of people from all the camps. Also, future studies should cover not only the level of satisfaction in the benefits but also the reasons that participants were satisfied or were not satisfied with each benefits of E-Learning in each category.

CONCLUSIONS

This was a study that use mainly a qualitative research method with a small group sample. By utilizing the focus group and an in-depth interview, the result revealed that the success of level of English communication depended on many important factors: Policy of the English camp, Students' ability to use English, the training format, and the ability of the trainers.

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BEAUTY, HEALTH, AND COSMETIC PROTECTION FOR THAI CONSUMERS

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Abstract - Beauty, health, and cosmetic products are a popular and booming business in Thailand for the last decade. However, there are many problems of poor quality, fake products, imitated ingredients, and other detrimental problems to consumers. The purposes of this research were to investigate necessary and vital strategies for beauty, health, and cosmetic consumer protection, also it was important to create a model explaining the relationship of the strategies for beauty, health, and cosmetic consumer protection, and to monitor the proper use of model. In order to find the answers for this research, a mixed research method of both quantitative and qualitative technique was conducted. The sample size of 400 respondents who used these products on a daily basis was determined by Taro Yamane table with a 0.05 level of significance. By using a simple random sampling technique and purposive sampling method, the number 400 was chosen. The data collation was done via a Likert five scales questionnaire to elicit respondents' opinion.

Index Terms - Beauty, Health, Cosmetics, Consumer Protection, Strategies.

I. INTRODUCTION

Beauty, health, and cosmetic products are a booming business in Thailand for the last decade due to the online business strategies and still have less protective covered from the government agencies. Beauty, health, and cosmetic products are one of the lucrative female dominated products for most of ASEAN nations. It is imperative that these kinds of products and consumers need to be protected for many legitimated reasons. The reasons include health concerns, safety to both physical and psychology, fraud to money and image, imitation of products and ingredients, and price as too high. In general, consumers of beauty, health, and cosmetic products can be defined as a group of customers who acquires beauty, health, and cosmetic goods and services for their own used, or direct use or ownership rather than for resale for the purpose of making profit and gain market shares. Beauty, health, and cosmetic products must have a general laws and regulations of consumer protection which is a group of laws and regulations. In addition, there must be government official agencies or organizations to protect many important issues such as the rights of consumers, fair market price, and accurate information about beauty, health, and cosmetic products. The laws in cosmetic products must aim to protect and prevent the sellers to engage in fraud, lie, and cheat consumers in a variety of ways as much as to use unfair practice and fraud information from gaining advantages over consumers and general competitors. The law of beauty, health, and cosmetic products needs to protect consumers strictly. For instance, the government agency must require beauty, health, and cosmetics products to fully disclose detailed information about the product epically in the areas of ingredient, safety, and health. It is clear that consumer protection is directly related topic with the consumer rights. Better consumer protection helps consumers to make an informed decision and make a better choices in the highly competitive globalization. Beauty, health, and cosmetic consumer interests need to be protected by promoting the access to broad and accurate information, have a powerful non-government organizations (NGO) to monitor the work as a watch dog for consumer protection domestically and internationally (Wongleedee, 2013).

Therefore, the author of this research is interested in investigating the current problems of beauty, health and cosmetic products consumer protection.

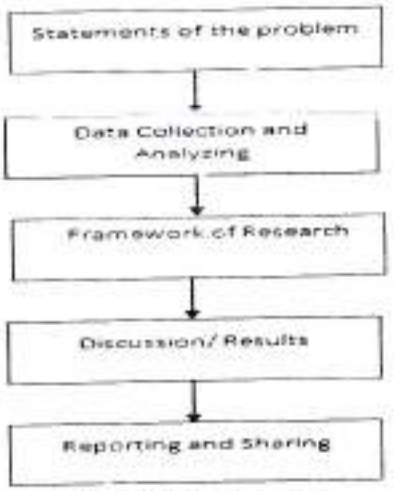

Fig. 1. Research Framework

II. METHODOLOGY

The population of this research includes all consumers of beauty, health, and cosmetic products because this kinds of problems are ongoing problems and has tremendous impacts on a big group of consumers substantially, it is vital to investigate the root of the problems and offer the proper model for generating the full-proof of consumer rights. The aims of this research were to investigate vitals factors influenced the strategies for beauty, health, and cosmetics consumer protections, to offer a research model explaining the relationship of the strategies for consumer protection, and to examine the proper use of research model. This study was a mixed research method of both quantitative and qualitative technique. The sample size of 400 respondents was determined by Taro Yemane table with a 0.05 level of significance. By utilizing the stratified and random sampling technique, a total of 400 was selected. The data collation was conducted via a Likert five scales questionnaire to elicit respondents' opinion. The questionnaire was tried out with 30 samples in order to test for its validity and reliability. All items received high reliability more than 0.75 Cronbach Alpha to be accepted.

IV. RESULTS

The main objective were to search for the factors influencing the strategies to protect beauty, health, and cosmetic consumers, the five important factors need to be discussed which are beauty, health, and cosmetic consumers, management, consumer protection strategy, public relations, and office of consumer protection board. Fig. 1. Shows the four external factors that affected the consumer factor which are information of cosmetics, consumer protection, data access and complaints, and consumption or usages

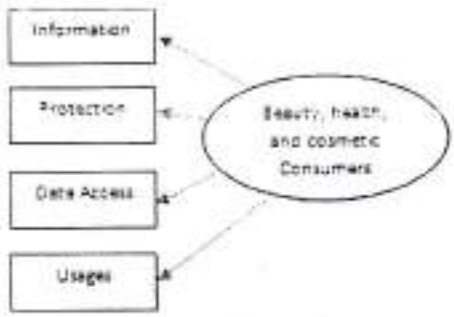

Fig. 1.

The second factor was about entrepreneur factors that may be influenced these factors which are skills and experience of entrepreneurs, quality and services, and network.

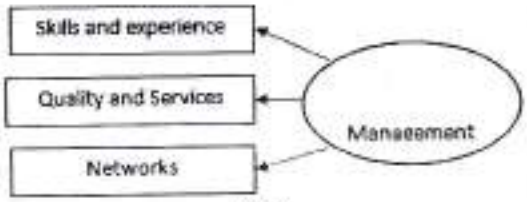

Fig. 2.

The third factor was about consumer protection marketing strategies which may be influenced by three factors which are economic measures, legal and regulations measures, and inspection.

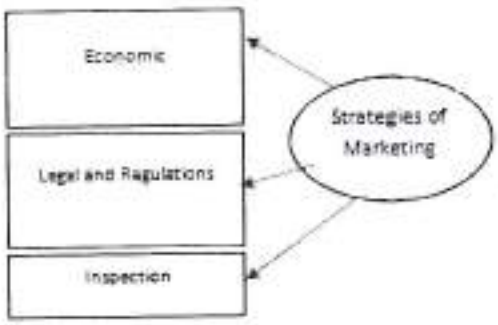

Fig. 3.

The fourth factor is promotion which may be influenced by three factors which are advertisement, participation, and NGO groups.

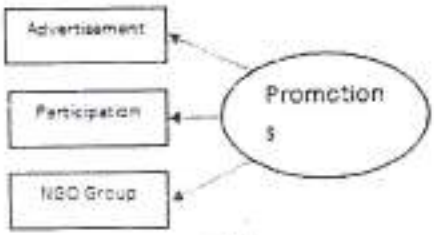

Fig. 4.

The fifth factor is consumer protection agencies which may be influenced by three factors which are coordination among agencies, responsibility of organizations, and empowerment.

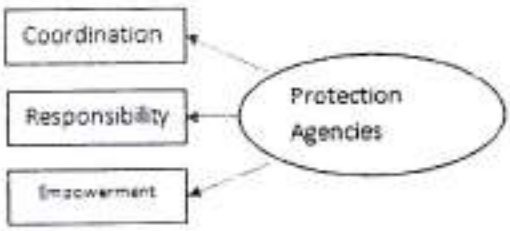

Fig.5.

CONCLUSION

In order to come up with the best marketing strategic plan for beauty, health and cosmetic consumer protection, it is imperative to understand should five success factors which are consumers, management, marketing strategies, promotions and consumer protection agencies.

ACKNOWLEDGMENT

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ENGLISH COMMUNICATE WITH INTERNATIONAL CUSTOMERS: A CASE STUDY OF HOTELS EMPLOYEES IN THAILAND

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Abstract - With significant jobs, incomes, and employments depend upon the booming of tourism, ability to communicate in English is an essential of job functions for many hotel employees working in hotels all over Thailand. The purposes of this research was to investigate the level of English that were used by hotel employees, the ability of employees to understand international customers, how to communicate with their international customers in basic English and finally to seek out what kinds of English trainings do they need to improve their ability to communicate in basic English effectively. The research had developed survey questionnaire in order to collect data from 400 foreign tourists who had been staying in hotels in many major tourist destinations such as Bangkok, Chiang-Mai, Pattaya, and Hua-Hin, and other major tourist cities. Data analyses revealed that the majority of respondents were able to communicate in English with hotel employees at minimal level. Most of hotel employees can say only greeting and taking simple orders from the international customers.

Index Terms - English Training, International Customers, English Communication.

I. INTRODUCTION

Tourism industry is a very successful business in terms of fast growth, however, English plays in important role in communication with foreign tourists. The high growth of tourism has influenced the need to obtain better training to improve employees at hotels and who are working in tourism and service industry to be able to communicate with international customers effectively (Wongleedee, 2013). Despite the fact that English is not the official language of Thailand, it is the second important language or business language of Thailand. The market often believes that strong candidates are always asked about their ability in English as well as the proof of their test score. In other words, it is common accepted that ability is a must and requirement of success in the job market. In comparison with the four or five stars hotels which have a proper training in communicate in English regularly, the employees in small hotel have to learn fundamental English by themselves and collecting more words from every day experience in the job.

The majority of students in primary schools and high schools often study English as a second language for many years. The focus of learning English is on the grammatical and comprehension reading, and less focus on writing, speaking and listening. The weaknesses of their English was due to the fact that the majority of teachers are not native English speakers or have a direct degree in the English teaching. This research aimed to put the focus on both sides of the communication which are employees of hotels and foreign tourists. The author of this research was interested in studying the level of satisfaction of ability in communicating in English from the perspective of foreign tourists who were staying at many different hotels all over Thailand.

II. LITERATURE REVIEW

The idea that every employees must be able to speak English and have possessed communication competency which is one of the most important areas that many teachers, professors, academicians, and educational policy makers are interested and often appears in the national debate. Clair (1991) stated that there were three communication principles. Communication competency includes grammatical and vocabularies knowledge, psycholinguistic knowledge, socio-culture knowledge, practical English usage knowledge (Hall, 1976). In the globalization era, ability to communicate better English serves as the ability to communicate in all over the world and inter cultural communication. Obviously, there is a rapid growth in high demand regarding the learning of English skills. The high demand of employees with ability in English means the high demand for proper training curriculums. English for specific purposes (ESP) is a system to identify the initial need for English communication and it is important to design English training to match with learners' specific needs and rational for learning (Hutchinson & Waters, 1987). In fact, the need to develop specific training program that suits for a particular group who have specific need in order to motivate them to learn effectively and be able to use their training knowledge to use directly in their everyday working hours.

ESP courses are widely used and accepted in Thai academic training and Thai educational system. The most common courses are business English, tourism English, service industry English, technical English, and major based training for specific purposes. In fact, the foundation of EPS is an approach to language training in which all decisions as to specific contents,

materials, and methods are based on the learner's reasons for learning (Hutchison & Waters, 2001).

ESP courses should be designed to improve certain language skills that are required to perform during the process of doing their jobs. In addition, learners of ESP courses are expected to enhance their English communication skills by practicing, role playing, and modelling in activities which requires the use of certain English skills. All this methods are important for training employees in hotels.

III. RESEARCH METHODOLOGY

The aims of this research paper were to conduct an investigation and to examine the ability of Thai employees, working in various hotels in many important tourist destinations in all regions of Thailand, to communicate with their foreign customers in basic English and also was to find out what kinds of English training do they need to improve their ability to communicate in basic English effectively. English survey questionnaire was designed and collected from 400 foreign tourists who had been staying in various hotels of major tourist destinations such as Bangkok, Chiang-Mai, Pattaya, and etc. This study was a case study of 400 hotel employees, Thailand. The population of this study included all employees who were working in hotels around Thailand during the year 2017.

IV. RESULTS

In order to answer the research objectives and questions, the demographic data first revealed that most of the foreign tourists who were staying in hotels in many different parts of tourist destinations in Thailand were men for 70 percent while the foreign tourists were accounted for 30 percent. In terms of their motive to travel and visit Thailand, the study revealed that pleasure or relaxation was about 55 percent, business or work related about 24 percent, education about 9 percent, and other.

Table 1. Foreign tourists' perceptiun toward hotel' employee English communication skills

English Communication skills in	Mean	S.D.
mployees can communicate with you and understand your English.	4.34	.997
mployees can greet you with proper English and proper manner of the West	4.67	.563
mployees can speak to you with confidence in his ability in English.	4.41	.982
mployees can respond to you immediately with information in English.	3.74	.897
mployees can fully explain with long sentences of English and with highly accurate.	2.75	.993

Based on the results of table 1 regarding foreign tourists' perception toward hotels' employee communication skills, the findings revealed that the foreign tourists agreed that the majority of hotel' employee can greet them in English with the highest mean. Second, the foreign tourists rated the ability of hotels' employees to speak English with confidence and understand their request as the second in the rank. Third, the foreign tourists rated the ability of hotels' employees to communicate to them with fundamental English as the third in the rank.

From the in-depth interview with some of the hotels' employees, they were unable to speak to their foreign guests effectively at the level that they needed to communicate. They are in need of training to improve their English communication ability in order to provide more information about their activities, festivals, games, local products and services to foreign tourists. Moreover, they also need from experts to help them write some information in proper format of English such as menu, games, activities, including rules and regulations of using hotels' facilities. Printed media can be created with the need to explain some detailed of activities and information in proper English to make sure that foreign tourists can understand by reading themselves which will help both senders and receivers of the communication to understand each other better and save time and trouble from miscommunication. The service quality, however, is one of their strengths.

V. DISCUSSION

The result is very easy to understand since greeting in English is very easy to practice or train, therefore, the guest houses' employees can perform this task easily. Moreover, it is the friendly custom of Thai people to greet and try to make their guests happy. While the ability to explain about their activities and services requires these employees to explain large amount of information in English which require many long sentences of English. Therefore, it is hard for them to perform correct and try to explain effectively.

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The author would like to thank the Research and Development Institute, Suan Sunandha Rajabhat University, Bangkok, Thailand for financial support and their document process. The author also would like to thank all employees working at various hotels all over Thailand for their cooperation and support in the information collecting process of the questionnaire. Also, the researcher would like to thank, Institution of ILPC for proof reading this research paper.

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FACULTY MEMBERS' SATISFACTION OF SSRU-TEP TESTING 2018

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Abstract - Faculty members of Suan Sunandha Rajabhat univerdity are all required to take the English test called "SSRU-TEP". The main objective of this survey research paper was to study the level of satisfaction of the faculty members who participated in the English test of SSRU-TEP. This was a quantitative research. The population of this study included all the faculty members of Suan Sunandha Rajabhat University who participated in the test during January to March, 2017. A total of 150 faculty members from various faculties who were willingly participated in an in-depth interview. The findings revealed that they all agreed that the test was a proper way to measure the level of ability of English. The four parts of the test was properly designed to suit with Thai people who used English as a second language.

Index Terms - SSRU-TEP, English as a Second Language, Satisfaction.

I. INTRODUCTION

Nowadays, it is important for both faculty members and students to enhance their ability in English. It is very important for ASEAN member nation to prepare every day toward the ASEAN Economic Community (AEC). It becomes the priority of many higher educational institutions. In general, the most important institutions to produce human capital for Thailand are very concerned that people of Thailand will fail to take advantages of this coming economic opportunity [1] [2]. It is imperative to train a variety of people in many educational fields and who are working for higher educational institutions such as professors, lecturers, students, and staff. The first group that needs to be train is the faculty members. This is because there are an important human capital that must be trained to take full advantage of the coming AEC and then spread their knowledge to other groups such as students, staff, and other university's stakeholders. Thailand has to compete with Top countries of ASEAN such as Singapore and Malaysia. However, some of Thai students' ability in English and academic still lack behind many ASEAN nations [3]. For instance, the findings also revealed that in terms of ability to use proper English for communication, Thailand was ranked number 53 among the Asia countries which indicated that Thailand has a very low proficiency in English, on the other hand, the top ASEAN countries such as Singapore and Malaysia were ranked number 12 and 13 of the Asia countries [4]. This is a fact that many remind that the Thai government needs to improve their national education plan in order to catch up with Singapore and Malaysia. What is so important of ASEAN countries? It is an important single economic entity. ASEAN covers a land area of 4.46 million km², which is almost 3% of the total land area of Earth. Moreover, it has a population of approximately 600 million people, which is about 8.8% of the world's population. In other words, it has about 600 million consumers who want to purchase new goods and services every day. The sea area of ASEAN is about three times larger than the size of its land counterpart. In 2012, ASEAN combined of nominal GDP had grown to be about US$2.3 trillion [5]. If ASEAN community were a nation, it would be ranked as the eighth largest economy in the world. This is why it is important for ASEAN members need to be trained in order to understand its new entity and new opportunity.

II. METHODOLOGY

The aim of this study was to study the level of satisfaction of faculty members from participating in the ASEAN camp which designed to improve their knowledge and help them to gain more experience about being ASEAN members. The population and sample size of this study was all faculty members which consisted of 150 respondents who participated in the ASEAN camp II in Thailand during April of 2017. Because the camp provided many ASEAN training activities and more demographic variety in both activities and demographic of samples would be obtained, the ASEAN camp II at Chantaburi Province was chosen as a main area of study. In fact, the sample size of 400 respondents was determined by Taro Yamane table with a 0.05 level of significance [6]. However, only 150 respondents were available. The data collation was conducted by using an English questionnaire to elicit respondents' answer about their level of satisfaction in participating in all activities at the camp. There are three parts to the questionnaire. Part one was aimed to ask them about their demographic information. Part two was aimed to ask them about their level of satisfaction in each activity and part three was aimed to provide a space to allowed respondents to provide comments and suggestions freely. The reliability and validity of each question

was important and, therefore, was tested by using Item-Objective Congruency or IOC index [6]. Also, 20 respondents from the previous camp were used as a pilot study in order to find ways to improve each question and to get a Cronbach Alpha Coefficient of more than 0.70 to be accepted.

III. FINDINGS

The findings from the sample group were 150 respondents who were faculty members signed up to join the camp and really participating in the camp until the end. A demographic profile indicated that more female than male respondents were sampled with a ratio of 65:45. The faculty member with Ph.D. group made up 25 percent of the sample population and the faculty member group with master degree made up 75 percent.

TABLE 1
Level of Satisfaction from Participating in the Camp

Activities	Mean	S.D.	Rank
1.The proper material of teaching and learning was provided at the ASEAN camp	4.45	0.7440	3
2.The suitable knowledge was provided at the ASEAN camp	4.44	0.5816	4
3.Helpful knowledge of ASEAN was provided at the ASEAN camp	4.75	0.9501	1
4. The proper schedule and time of activities was implemented at the ASEAN camp	4.22	0.6869	5
5. The job performance and service of the staff was provided at the ASEAN camp	4.04	0.7387	6
6.The understandable of the knowledge was provided at ASEAN camp	4.56	0.6114	2
All categories	4.41	0.7188	

From TABLE 1, the mean score can be used to rank the highest to the lowest concerns as follows: 1) Helpful knowledge of ASEAN was provided at the ASEAN camp, 2) The understandable of the knowledge was provided at the ASEAN camp, 3) The proper material of teaching and learning was provided at the ASEAN camp, 4) The suitable knowledge was provided at the ASEAN camp, 5) The proper schedule and time of activities was provided at the ASEAN camp, and 6) The job performance and service of the staff was provided at the ASEAN camp. Also, the mean score of all categories is 4.41 with standard deviation of 0.7188 which indicated that the average level of satisfaction is high and the ASEAN camp can be considered a success. However, tow lowest scores indicated that more can be done in regards to the job performance of the staff at the ASEAN camp. The results of this finding generally concurred with the first result from the study of both faculty and staff members at the first ASEAN camp in Kanchanaburi, Thailand [8].

IV. LIMITATION AND FUTURE STUDIES

One of the main limitations of this paper came from sampling only faculty members who participated only in one ASEAN camp which may not represent all the other participants in the other ASEAN camps. As a consequence, the findings may not be generalized. Therefore, future research should use random sampling with more variety of people from many camps. Also, future studies should cover not only the level of satisfaction but also the reasons that participants were concerned or were not satisfied with any other topics in each category. Moreover, an in-depth interview should be used to get the qualitative information to compare with the quantitative information.

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ENTRY MODE AND QUALITY INTRODUCTION OF FDI FIRMS

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Abstract - This paper employs a three-stage game to investigate the optimal entry mode and quality incremental introduction of MNEs when it introduces a vertical product. The results show that, with vertical product, a higher number of domestic firms lead to an introduction of higher quality incremental when domestic quality is sufficiently low. On the contrary, for a sufficiently high domestic quality, he foreign quality incremental exhibits a concavely change in the number of domestic firms. It also shows that the foreign firm with direct entry mode introduces lower quality incremental than which with acquisition mode when the domestic quality is sufficiently high. However, the foreign firm always prefers to enter the domestic market with direct entry mode.

Index Terms - Acquisition, entry mode, quality transfer, three stage game

I. INTRODUCTION

Emerging markets collectively accounted for $7 billion in 2000, but $111 billion in 2008, in outward international M&A, which shows about an average annual increase of 200% over the 8-year period.[1] The M&A entry mode in this period accounted for about 65%, 82%, and 27% of FDI (foreign direct investment) flows in the world, the developed economies, and the developing economies, respectively, according to UNCTAD statistics (2010). Due to the enormous growth in FDI has significantly increased the number of multinational enterprises (MNEs), the issue of technology transfer and entry mode of foreign firms has gained increasing attention. In the literature, technology transfer is always proxied by the reduction of marginal production cost. However, it can also exhibit in the introduction of higher level of quality with a higher production cost and/or with extra transfer cost. Usually the MNEs produce product with higher quality than that the domestic firms produce. The MNEs could use quality incremental a strategy in competing for domestic market and in term affects its mode of the entry, which is not yet studied.

Basically, there are two alternative entry modes for the FDI flows: direct entry and acquisition entry (e.g., Elango, 2005; Williams, 2005). Acquisition may be preferred when entry costs are very high (Al-Kaabi et al., 2010; Fatica, 2010) or when enabling market development is desired in less developed markets (Teixeira and Grande, 2012). While, direct entry may be preferred when direct historical and cultural ties exist between home and host countries (Demirbag et al., 2010). On the other hand, Eicher and Kang (2005) found that large countries are more likely to attract acquisitions, the intermediate-sized countries may be served predominantly through trade, and small countries are most likely to experience either or no entry.

Different entry mode may induce different level of technology transfer of the MNE, which makes the technology transfer be an important strategic decision for MNEs (Kasuga, 2003; Eicher and Kang, 2005) and the host regulations. Doubtless, the MNEs seek the optimal entry mode to prevent the dissipation of their technological advantages (e.g., Ethier and Markusen, 1996; Markusen, 2001), while the host government regulates on the MNEs' entry mode for larger social welfare. Mattoo et al (2004) showed that an MNE with acquisition entry puts in more technology transfer when the number of firms in the market is small. However, the knowledge gap, for instance, between the MNEs and the developing countries usually result in larger costs of technology transfer for acquisition, making direct entry more preferable to MNEs (Bjorvatn, 2001).[2] Also, the regulations of host governments affect the MNE's mode of entry.[3] Taiwan bio-tech firms, for example, generally consider acquisition as the first-priority mode for entering mainland China (Lee et al., 2011) due to China's foreign-ownership restrictions, which nonetheless may lower the quality of technology transferred (Lee and Shy, 1992). Besides, Muller (2007) showed that direct entry mode is optimal to an MNE if the cost of technology transfer is sufficiently high and the competition of home market is sufficiently low.

In this paper, we focus on this issue to investigate what the optimal entry mode is for the MNEs when it introduces a higher quality product. To achieve this goal, a three stage game is employed. The owner of the foreign firm chooses mode of entry (acquisition or

[1] It accounted for about 74%, 21%, and 8% of FDI flows in EU, Asia and China, respectively, and China Hong Kong and other South-East Asian countries were the main beneficiaries of the heightened FDI flows.

[2] The ability and effectiveness of adopting new technology for the host countries are essential to the decision of an MNE's acquisition-entry.

[3] The host governments generally have incentive to attract FDI for gaining effect of technology transfer as shown in Glass and Saggi (2002).

direct entry), decides the level of quality incremental, and finally compete the sale of product with domestic firms in a Cournot fashion.

The results are interesting. We find that, with vertical product, a higher number of domestic firms lead to an introduction of higher quality incremental when domestic quality is sufficiently low. On the contrary, for a sufficiently high domestic quality, he foreign quality incremental exhibits a concavely change in the number of domestic firms. It also shows that the foreign firm with direct entry mode introduces lower quality incremental than which with acquisition mode when the domestic quality is sufficiently high. However, the foreign firm always prefers to enter the domestic market with direct entry mode.

This paper is organized as follows. Section 2 discusses the theoretical setup and describes the two entry modes (acquisition and direct entry) for the foreign firm to enter the host country. Section 3 provides a four-stage game model to analyze the extent of technology transfer and the optimal entry mode when a foreign firm decides to enter the market of the host country. Section 4 focuses on the impact of the foreign firm's entry decision on the host country's welfare. Section 5 offers our conclusions.

II. THE MODEL

There are 2 domestic firms and one foreign firm. The domestic firms have identical marginal production costs and homogeneous products. The foreign firm enters the domestic market via acquisition or direct entry, introduces a differentiated product with higher level of quality.[4] To investigate the relation of product differentiation, technology transfer, and mode of entry, we employ a three-stage game.

In the first stage of the model, the foreign firm has two options for entering the domestic market: acquiring a domestic firm or setting up a wholly owned subsidiary that directly competes with domestic firms.[5] If it chooses to acquire a domestic firm, it makes a take-it-or-leave-it offer (x) to buy out the target firm. If the target firm accepts the offer, they form a new firm owned by the foreign firm. If the target firm refuses the offer, the foreign firm can enter the market by establishing its own subsidiary or by acquiring some other domestic firm.[6] We assume the buy-out fee offer will leave the target firm with a payoff equal to that when some other domestic firm is acquired. Therefore, the structure of the domestic market influences costs of acquisition entry but not those of direct entry.

After selecting the mode of entry, the foreign firm in the second stage chooses the amount of technology transfer (x) to its subsidiary, which gives it an extra level x in quality higher than the domestic products and costs it an extra investment $C(x) = \beta x^2/2$. A higher parameter β implies lower transfer efficiency and higher marginal transfer costs. In the last stage, firms compete in a Cournot-Nash fashion.

If the foreign firm chooses direct entry, the total number of firms in the domestic market is 3; otherwise it is 2. Also note that, hereafter, subscript h, i, and f denote all the domestic firms, the individual domestic firm, and the foreign firm, respectively. Let v represent the quality of domestic product and is fixed due to the constraint of technology.

To explore how the vertical differentiated product affect a foreign firm's strategic behavior, we follow Auriol (2012) and Singh and Vives (1984) to build a quality augmented linear demand. Assume the indirect utility of a representative consumer consuming two goods of quality v_1 and v_2 is represented by:

$$V(w, p_1, p_2) = u(w) + v_1 q_1 + v_2 q_2 - \tfrac{1}{2}Q^2 \qquad (1)$$

Where p_i, q_i and v_i represents price, quantity and quality of good i; $Q = q_1 + q_2$; u(w) is an increasing and concave utility function of the consumer net income, $w = R - p_1q_1 + p_2q_2$. Optimizing V with respect p_1, we have

$$\frac{\partial V}{\partial q_1} = -u'p_1 + v_1 - Q = 0 \text{ and } p_1 = \tfrac{1}{u'}(v_1 - Q) \qquad (2)$$

The u' is the marginal utility of income for the consumer. We can derive equation (2) to obtain $p_1 - p_2 = (1/u')(v_1 - v_2)$, implying the two goods are not perfect substitution unless they have same quality. To simplify our analysis, we assume u' = 1 throughout the paper, which results in the quality augmented linear demand as $p_i = v_i - Q$. Therefore, for our paper, the demand of individual domestic firm and the foreign firm will respectively be

$$p_i = v - Q \text{ and } p_f = (v + x) - Q \qquad (3)$$

Where $Q = \sum_{i=1}^{n} q_i + q_f$ in which n = 2 and 1 for the foreign firm choosing direct and merger entry mode, respectively

III. MODEL ANALYSIS

By backward induction, the analysis starts from the last stage (i.e., the product market), in which the domestic firms and the foreign firm simultaneously choose their output levels. The firms' profit functions are given by:

$$\pi_i = (v - Q)q_i \text{ and } \pi_f = (v + x - Q)q_f \qquad (4)$$

By optimization with respect to q_i and q_f, we obtain the equilibrium outputs, prices and profit as the followings:

[4] Without loss of generality, the assumption that all domestic firms produce homogeneous products can simplify our analysis.

[5] Matoo et al (2004) shows that, in equilibrium, the foreign firm does not choose partial acquisition. Throughout the paper in order to proceed to a concise mathematical analysis, we consider only the case of full acquisition of the domestic firm.

[6] There is a fixed cost of setting up plant for direct-entry MNEs. We do not contain the fixed cost in our model because it does not affect the decisions of optimal choice.

$$q_i = \frac{v - x}{n+2} \text{ and } q_f = \frac{v + (n+1)x}{n+2} \quad (5)$$

$$p_i = \frac{v - x}{n+2} \text{ and } p_f = \frac{v + (n+1)x}{n+2} \quad (6)$$

$$\pi_i = \left(\frac{v-x}{n+2}\right)^2 \text{ and } \pi_f = \left(\frac{v+(n+1)x}{n+2} - \frac{\tau x^2}{2}\right) \cdot \frac{v+(n+1)x}{n+2} \quad (7)$$

Thus we here impose a constraint v > x for guaranteeing the existence of the domestic firms. We can see from the above equations, higher quality improvement induced by the foreign firm will decreases the price, quantity, and profit of domestic firms, but increase the price and quantity of the foreign. As for the foreign firm's profit remains indetermined, depending on the cost of the introduction of quality improvement. Also, given that the foreign firm introduces the same level of quality improvement for any entry mode. After the foreign firm enters, the price, quantity, and profit decreases when the competition of domestic market is higher. However, with higher competition of domestic market, the foreign firm's price, quantity, and profit are all increasing. This is in the reverse of the traditional model, in which larger quantity generally leads to lower price. We summarize the findings in Lemma 1.

Lemma 1.

(1) $\frac{\partial q_i}{\partial x} < 0, \frac{\partial p_i}{\partial x} < 0, \frac{\partial \pi_i}{\partial x} < 0; \frac{\partial q_f}{\partial x} > 0, \frac{\partial p_f}{\partial x} > 0.$

(2) $\frac{\partial q_i}{\partial n} < 0, \frac{\partial p_i}{\partial n} < 0, \frac{\partial \pi_i}{\partial x} < 0; \frac{\partial q_f}{\partial n} > 0, \frac{\partial p_f}{\partial n} > 0, \frac{\partial \pi_f}{\partial n} > 0.$

At the second stage, expecting profit of (7) and taking into account the cost of technology transfer for improving quality, the foreign firm chooses the level of quality improvement (x) to maximize its profit. To assure there is a maximum, the second order condition of (7) need to be satisfied, which give us the constraint that:

$$x > \frac{-B}{2A} \quad (8)$$

where $A = -3N(N+1)\beta$, $B = -2(N+1)v\beta + 4N^2 - 2d$, and $d = 1, 0$.

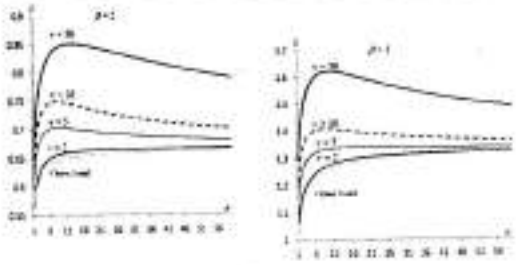
In the merger-entry, N = n and d = 1, while it's N = n+1 and d = 0 for the direct entry case. Defining C = (4N+2d)v and optimizing (7) with respect to x, we obtain the equilibrium level of quality improvement:

$$x^* = \frac{-B - (B^2 - 4AC)^{1/2}}{2A} \quad (9)$$

As already known in equation (5), v must be greater than x^*, thus we derive our assumption throughout the paper as the following:

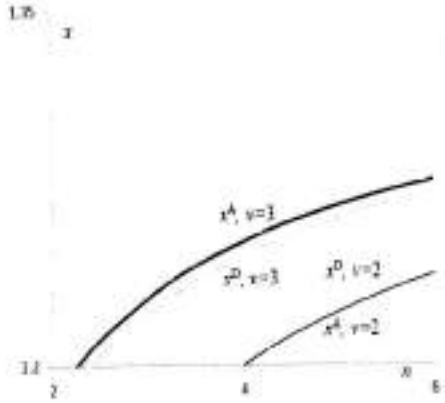
Assumption. $v > \frac{4(n+1)}{2 + 3(n+1)\beta}$

By simulation as Figure 1, it clearly shows that as in Figure 1.



We see that when domestic quality v is sufficiently small, quality increment induced by foreign firm is increasing in the number of firms. However, when domestic quality is sufficiently high, then the quality increment transferred by the foreign firm will be first increasing and second decreasing in the number of firms. That is:

Proposition 1. A sufficiently low quality of home product leads to an increasing quality incremental of a foreign firm for an increasing domestic competition. However, the foreign quality-incremental exhibits a concavely change in domestic competition when domestic quality is sufficiently high.

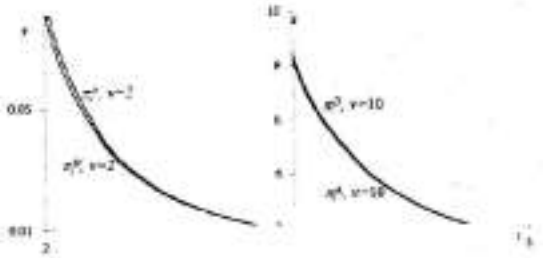


Lest assume technology transfer parameter β equal 1. By Figure 2 we see that for a small domestic quality level, the foreign firm with direct entry mode will introduce a higher quality incremental than which with acquisition mode. However, it reverses when the domestic quality level is sufficiently high. That is because higher competition when faces higher domestic quality makes less profit for direct entry mode of the foreign firm, which inducing a lower quality incremental.

Proposition 2. With a sufficiently high domestic quality, the foreign firm with direct entry mode introduces lower quality incremental than which with acquisition mode.

As for the profit, we see from simulations that acquisition mode of the foreign firm will benefit the domestic firm more when the domestic product quality

is small. On the contrary, when the domestic product quality is sufficiently high, the direct entry mode will benefit the domestic firm more than the acquisition mode.



The optimal choice of entry mode depends on which mode brings more profit to the foreign firm itself. As simulations shown in Figure 4, regardless of the level of domestic product quality, the foreign firm always prefers direct entry mode to acquisition mode.

Proposition 3. With vertical product quality introduction, the foreign firm always prefers to enter the domestic market with direct entry mode.

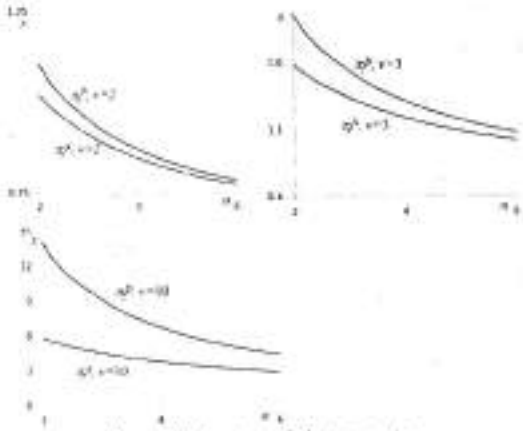


Figure 4 the foreign profit for both modes

According to Proposition 1 and 3, we see that the foreign always chooses direct entry mode, but it introduces higher level of quality incremental only when the domestic quality is sufficiently low.

Proposition 4. The direct entry mode is an optimal choice of the foreign firm, but it induces higher quality incremental than acquisition mode only when the domestic quality is sufficiently low.

CONCLUSIONS

Multinational enterprises and their products have been and will continue to be an important source for improving competitiveness of domestic firms in developing countries. Accordingly, multinationals' entry mode, technology transfer, and product differentiation will have distinct impact on the host countries' welfare. This paper focuses the optimal entry mode of MNEs when it introduces a higher quality product and introduces a three stage game. We then find that, with vertical product, a higher number of domestic firms lead to an introduction of higher quality incremental when domestic quality is sufficiently low. On the contrary, for a sufficiently high domestic quality, he foreign quality incremental exhibits a concavely change in the number of domestic firms. It also shows that the foreign firm with direct entry mode introduces lower quality incremental than which with acquisition mode when the domestic quality is sufficiently high. However, the foreign firm always prefers to enter the domestic market with direct entry mode.

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APPLYING INTERTEXTUALITY BETWEEN FILM AND PAINTING FOR FILMMAKING

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The objectives of this research were to study applying intertextuality between film and painting for filmmaking. This research is a qualitative research that studies about the concept of Intertextuality between film and painting that is extracted into a knowledge that was used in the classroom for students to apply for making their own films. This research contains the study from the documents , educational tour at the museum , and analysing students' the use of knowledge to apply for making their films. The result indicates that there are four patterns of intertextuality between film and painting that usually appear in films : homage , allusion , quotation and parody. Intertextuality can be presented in two aspects which are the presentation of form that the art movement is used as the inspiration and tool for creating the image and story of the film while the presentation of content is the narration that is related to the paintings or some parts of the artists' lives.The knowledge about painting can be applied for filmmaking through the mise-en-scène of the film (for example, composition , art direction, lighting and color) Students can apply the concept of intertextuality between film and painting into their filmmaking process. They like applying through the presentation of form by getting inspiration from the art movement that harmonize with their films. Homage is the most used intertextuality pattern while quotation and parody is secondary. Moreover students can apply the knowledge about intertextuality between film and painting that was indicated from the mise-en-scène in their films.

Index Terms- Film, filmmaking, intertextuality, painting

I. INTRODUCTION

Art has lived with human for long time because of it's a tool not only to polish the human's soul but also refine and extract the most delicate parts of mankind. It is also a medium that human use to convey ideas ,feeling about their lives, societies , inner and outer world.

Film is one of the seven branches of art including painting, sculpture, architecture, literature, music, dance and film that is the latest art in the group. But film was seen as the most powerful medium of all. With filmmaking, it is possible to combine the features and power of all six media to fuse and convey the story of life and society effectively. (Teerapong Serisamran, 2017: 126)

[illegible] basis for filmmaking, such as the use of painting as a model for the composition of the meaning of the film or the use of the form of dance to apply for acting in the film, etc. In addition to, It not only helps the film to be beautiful and Aesthetics art but also get back to inspire art too. For example, in the film "The Overture (2004)" , the life story of Thai music master Luang Pradit Phairoh (Sorn Silapabanleng) , that presents the beauty of Thai music making the film's well received and making people to interest in Thai music as well. There is the relationship between the story and the art form that was used in the film. This is the concept of the relationship or intertextuality that is used interchangeably between film and art.

The concept of intertextuality is based on the idea that in this world, things are all connected. Chandler (Chandler,2003:251) defines the intertextuality as " Intertextuality refers to the various links in form and content which bind a text to other texts." Hayward (Hayward, 2006: 201) discusses the intertextuality between film and other texts as " Most films are intertextual to some degree – a text referring to other texts, an intertext in whose presence other texts reside. For example, a film may be based on an original text, a novel or play. The shooting style of the film may be painterly, suggesting painted texts to which it might be referring." For this reason, the film and the art are deeply connected .Especially painting, which is the foundation and the essence of creating a film. Western films have a deep connection with painting, and they relate to each other as the heart of the film. But for Thai films, the relationship between film and painting is still relatively small. And it is only to create the beauty of the film. It is not possible to bring the audience deep into the art with a deep relationship.

For this reason, the researcher sees the importance of studying the concept of intertextuality and the knowledge about Thai painting to use for creating films that are linked between the style and content of the film and Thai painting to create aesthetics for the film and to promote understanding and love in Thai art deeply also contributes to the conservation of art and culture of the nation as well.

II. RESEARCH OBJECTIVES

1. To study the intertextuality between film and painting.
2. To find knowledge about Thai painting.

3. To apply the concept of intertextuality between film and painting for filmmaking.
4. To provide knowledge in teaching students to gain knowledge and understanding of the use of national artistic and cultural resources for filmmaking.

CONCEPT, THEORY AND RELATED RESEARCHS

The key concepts used in this research is the concept of intertextuality. Daniel Chandler (Chandler, 2003: 230) has defined the intertextuality as " Intertextuality refers to the various links in form and content which bind a text to other texts."

Film scholar Susan Hayward (Hayward, 2006: 226) discusses the intertextuality between film and other texts as " Most films are intertextual to some degree – a text referring to other texts, an intertext in whose presence other texts reside. For example, a film may be based on an original text, a novel or play. The shooting style of the film may be painterly, suggesting painted texts to which it might be referring."

In summary, the concept of Intertextuality is a concept based on the belief that there is nothing new in the world. Everything is connected. Creative works can not be called original.

A study of research related to the relationship between film and painting. A number of studies have investigated the related issues that can be applied to this research. The most interesting and useful are as follows.

1. Asst.Prof.Dr. Chalongrat Chermalchonlamark, "Intertextuality between Films and Artists and Artworks in Western Films". Research findings were that western films had four patterns of intertextuality between films and artists and artworks in films. The first pattern was Homage intertextuality which considerable emphasized the artists and artworks and the films usually conveyed the artists' biography and creation of elaborate artworks. The second pattern was Allusion intertextuality [illegible] intertextuality because the films broadly or even slightly told a story about the artists of their artworks. The third pattern was Quotation intertextuality where the artists' life or artworks were significantly adapted in the films and the cited story was noticeably weighed. The fourth pattern was Parody intertextuality which used the artists or their artworks for comic effect and intentionally interpreted the artworks in a humorous way or parodied the artists'characteristics for fun.

2. Asst.Prof.Dr. Chalongrat Chermalchonlamark, "Intertextuality between films and paintings : A Comparison between Western films and Thai films" The study results show that the paintings have intertextuality with Thai films as the ornaments that help enhancing the beauty while they have intertextuality with Western films as the cores. Paintings and artists are always praised by western films.However it can be concluded that every contemporary film industry have admired the paintings as an art that helps illuminate the way for the film both in Thai films and Western films.

3. Wichayut Puchitakorn, "Crossmedia and Transcutural Intertextuality of "RING" in Novel,Film,Television Drama and Manga" The research has found that the crossmedia intertextuality of "Ring" in novel,film,television drama and manga was maintained, extended, reduced and modified. The transcultural intertextuality of " Ring" in Japanese film, Korean film and Hollywood film were maintained, extended, reduced and modified included with the concept of adapted social and cultural context. The critical aspect of the cross-media intertextuality of "Ring" was adapted in the form of presentations which depend on media nature and was adapted in text which depend on target group.On the other hand, the critical aspects of the transcultural intertextuality of "Ring" were adaptation in social and cultural context and text which depended on target group of each country.

SCOPE OF RESEARCH

This research is a qualitative research that studies about the concept of Intertextuality between film and painting that is extracted into a knowledge that was used in the classroom for students to apply for making their own films. This research contains the study from the documents , educational tour in the museum , and analysing students' the use of knowledge to apply for making their films.

Expected Benefits

1. To gain knowledge about the concept of intertextuality between film and painting.
2. To gain knowledge about Thai painting.
3. To gain knowledge about filmmaking, which brings together the concepts of film and painting in filmmaking.
4. To [illegible] knowledge [illegible] artists and [illegible] national artistic and cultural resources to produce films.

RESEARCH RESULT

The intertextuality between film and painting can be divided into two aspects: the presentation of form and content. The details are as follows.

1. The presentation of form

It is the creation of the film that inspired by the style and art movement which appear through the film elements . The art movement that are usually found in the film includes Realism, Impressionism , Expressionism, Idealism, Romanticism , Surrealism, Abstract , etc.

2. The presentation of content

The presentation content refers to the narrative of a film that a story has something related with painting or painters.

The interrelation between texts or the patterns of intertextuality can be done in several ways. The most common patterns of the intertextuality between film and painting are as follows.

1) Homage is a salutation or a tribute to the excellent artworks or the masters . Homage is a show or demonstration of respect or dedication to someone or something, sometimes by simple declaration but often by some more oblique reference, artistic or poetic. The term is often used in the arts for where one author or artist shows respect to another by allusion or imitation. Rayner (Rayner, 2001: 77) explains homage as "Homage suggests respect for a particular text, acknowledging the power and importance of the original text by imitating it."

2) Allusion is the connection with other texts that is a broad connection , no praise or humor. Allusion is a passing or casually short statement indicating broader meaning. It is an incidental mention of something, either directly or by implication.

3) Quotation is a connection to an original work that is both visual and audio. Quotation can be made in various forms, such as audio-quotation and visual-quotation. In the case of intertextuality between film and painting, quotation is the most common occurrences.

4) Parody is a work created to imitate, make fun of, or comment on an original work—its subject, author, style, or some other target—by means of satiric or ironic imitation. The intent is to create a humor. Berger (Berger, 1995: 91) described that parody is a good example for the concept of intertextuality and there are three levels of Parody : Specific Works , Distintive Styles and Particular Genres.

The concept of intertextuality between film and painting can be applied to filmmaking through the use of art knowledge though mise-en-scene of the film , especially these 4 aspects : composition , art direction , lighting and color.

Composition is the way that people or things are arranged in a painting , photograph or film.

Art direction is the overall visual appearance and how it communicates visually, stimulates moods, contrasts features, and psychologically appeals to audiences.

Lighting is the deliberate use of light to achieve a practical or aesthetic effect.

Color is how color is used in film. Color can affect audiences emotionally, psychologically and even physically. Color in film can build harmony or tension within a scene. Bring attention to a key theme.

The courses that researcher taught about intertextuality between film and painting are Film Theory and Philosophy of Film at Suan Sunandha International School of Art. Researcher explained about the basic to apply intertextuality between film and painting for filmmaking to students.

Afterthat researcher took the students to have a educational tour at MOCA (Museum of Contemporary Art) that is the place where a long yet interesting history of Thai art is recorded and a perfect combination between the extraordinary traditional Thai art and the academic art known internationally is demonstrated. Inside contemporary art by Thai artists from different generations is exhibited. Then the students summarized their favorite and impressed artworks and the knowledge that they've got from this educational tour.

The students applied their knowledge about intertextuality between film and painting for making their films. Students from Film Theory class are divided into 2 groups and making 1 film per group. Then researcher has analysed the applying of intertextuality between film and painting from their films. The result are as follows;

Table 1 : Analysis of Applying intertextuality between film and painting for filmmaking in short films "RARENG"(Indulgence) and "Blood Night".

Films	The area of presentation	The patterns of intertextuality	The applying through mise-en-scene in films
RARENG Genre: Drama	**The presentation of form** -Filmmakers turned the inspiration and impression from their favorite paintings to use in mise-en-scene of the short film.	**Quotation** - Filmmakers used Thai and international paintings to decorate the protagonist's room and appeared to be the protagonist's artwork for portraying the protagonist's personality and situation that he faced. **Homage** - Filmmakers pay homage to the artwork of Thai artist, Thongchai Sriyakprasert by imitating this artwork for creating the important shot in climax scene.	In Climax scene that the protagonist was shot by his brother because of deception and his brother was shot by a wire puller, filmmakers used the artwork of Thongchai Sriyakprasert that was inspired from Buddha's teaching about desires and cycle of birth and death to be the model for the composition and color tone in this scene for portraying the tragedy that happened between
	The Presentation of Content -The protagonist's hobby is painting and he has many paintings in his room.		

			this sibling.

Picture 1 : The protagonist's room and his artwork

Picture 2-3 : The drone shot from climax scene of Rareng (below) that inspired by Thongchai Srisukmasert's artwork (above)

Blood Night Genre - Comedy / Horror	**The presentation of form** - Filmmakers turned the inspiration and impression from their favorite [illegible] to use in mise-en-scene of the short film	**Parody** - Filmmakers used the artwork of Thai artist, Tawan Duchanee, to create an ironic imitation for introducing three main characters	In 1st Act, filmmakers introduced three main character by using Thawan Duchanee's artwork to be a model for the composition and position of three main character for portraying their relationship and the
			personality of these characters that conform with the inspiring painting but in comic way.

Picture 4-5 : A shot from Blood Night (below) that inspired by Tawan Duchanee's artwork (above)

The students from Philosophy of Film class are the fourth year students so they used their knowledge about intertextuality between film and painting for making their thesis project films. There are [illegible] films that completely finished. Researcher analysed the applying of intertextuality between film and painting from their films. The result are as follows:

Table 2 : Analysis of Applying intertextuality between film and painting for filmmaking in short films "Lineus Longissimus", "Mad" and " ".

Films	The area of presentation	The patterns of intertextuality	The applying through mise-en-scene in films
Lineus Longissimus Genre - Psychological thriller	**The presentation of form** - The style of this film was inspired by Expressionism art movement because the concept of	**Homage** - Filmmakers pay homage to the artworks of Thai artist, Tawan Duchanee, by imitating his artworks for creating the atmosphere of the film and portraying mysterty, fearfulness, violence and the protagonist's perversity.	Filmmakers used Expressionism artwork of Tawan Duchanee to be a model for creating their mise-en-scene
	this art movement conforms with the style of the film.		the use of color (black on red), lighting and composition for portraying mysterty, fearfulness, violence and the protagonist's perversity.

Picture 8-9 : The shot from "Linea Longissima" (below) shows the surreal lighting , the use of color and composition that inspired by Tawan Duchanee's artwork (above) for portraying violence and the protagonist's perversity

Mad Genre – Psychological Thriller	**The presentation of form** - The style of this film was inspired by German Expressionism art movement because the concept of this art movement conforms with the style of the film.	- Filmmakers didn't use any specific paintings to inspire the film. The pattern of intertextuality didn't appear in this film.	- Filmmakers didn't use any specific paintings to inspire the film but they used the knowledge about painting for composition of the film in German Expressionism style for creating the mystery and fearful atmosphere and portraying the madness of the protagonist.
Strange World Genre –Dramatic coming of age	**The presentation of form** Drama film that portraying the love story between two girls. The director used Realism style for this film because she wanted to present subject matter truthfully without artificiality and avoiding artistic conventions.	- The director specific paintings to inspire the film. The pattern of intertextuality didn't appear in this film.	- The director specific paintings to inspire the film but she used the knowledge about painting for composition of the film in realism style that conform with her story.
	or implausible, exotic, and supernatural elements.		

CONCLUSION

The Students can apply the concept of intertextuality between film and painting into their filmmaking process. Most of them applied through the presentation of form by getting inspiration from the art movement that harmonize with their films. There is only one film that use the presentation of content because the filmmakers want to make the connection between their protagonist and story to the art. Homage is the most used intertextuality pattern while quotation and parody is secondary. Moreover students can apply the knowledge about intertextuality between film and painting that was indicated from the mise-en-scène in their films.

RECOMMENDATION

Researchers can make this research further by studying the concept of intertextuality between film and the other arts , for exampl sculpture, architecture, literature, music or dance, for applying the knowledge to make films.

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THE VISUALIZATION OF PHOTOGRAPHY LEARNING THROUGH CINEMATIC METHODS

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Abstract - The Visualization of Photography Learning Through Cinematic Methods is a part of the Photography for Community project and the Principal of Photography course that its class learning activities included the documentary photography theory and the visualization theory that learning from two documentary films that are different in style about their visual-storytelling. The first one is street photography style by Vivienne Maier and the second one is documentary photography style by Sebastião Salgado. After watching the films , there is discussion and interpretation in class about their conceptual and style in photography, in the end of class students will create their concept for shooting in Photography in Community project. The objective in this research is to create a new perspective on photography by learning from the cinematic methods and students will be inspired by 2 photographers in the perception of their community's photography. The research was found that students were interested in studying photography through documentary films and not only the student can apply concepts from the cinematic methods in documentary films to create their own photography concepts for the community but they can transfer their concepts to community projects and presented in conferences and publication in the academic proceeding also.

Index Terms - Cinematic, Photography, Community.

I. INTRODUCTION

The word 'photograph' means 'light-writing'. The photograph not only signals a different relationship to and over nature, it speaks very much to a sense of power in the way we seek to order and construct the world around us.[1] And the movie collaborating between still image and the machine like, its presented with the theory "persistence of vistion".[2] The undeniable in the origin of concept in the movie comes from a still image theory or photography but the movie is a mixed art and narrative the content or the idea like a literature, it's called "cinematic", that's difference with the photography, it's gives all of concept in 1 picture. Even so, the photographs have a metaphorical or hidden connotation same like the movie but all of symbolic and the story came from the photographer's life. So both types of media have the concept in the same way but it's a different output.

The photography learning with cinematic method. It's so interesting to create new knowledge with different media in classes. Therefore, this article is to present the development of student photography. I use 2 documentaries films in class teaching to developing the ideas and work pieces of students. This project to build upon the success of cross-media learning and the student's aesthetic development. The 2 documentaries films are Finding Viviane Maier (2013) directed by John Maloof, Charlie Siskel and The Salt of the Earth (2014) directed by Wim Wendes. The 2 documentaries films tell the story about life and concept of work of 2 greats photographers.

The Basics practiced in class

II. THE BASICS PRACTICE WITH PHOTOGRAPHY LESSON IN CLASS

Before we screening the films in class, the first step of assessing student development, this is a basic observation of students' work with the basics topics in assignment.

The basics photography assignment.

1) Take the picture in a day time and push the f-stop to the normal light (Middle in grey scale) and open exposure over 3 stop and under 3 stop from the normal light in the same frame.

Picture from assignment 1

2) Take the picture in a day time with DOF in the normal light by closer exposure (EX. F22) 1 photo and open exposure (EX. F2.8) 1 photo per 1 exposure.

Picture from assignment 2

3) Use the camera on monopod (or tripod) and take fast movement of the subject with pan and open speed shutter more than 500/1.

Picture from assignment 3

4) Take the picture in the night with low speed shutter with fast movement of the subject, take in a different speed.

Picture from assignment 4

After the assignment, I have summarized the basics of photography from student work, their photos focus on the simple senses and point of view, they does not take the photos with the aesthetics and concept in their photography.

III. ANALYSIS AESTHETICS OF PHOTOGRAPHY IN DOCUMENTARIES FILMS WITH DYNAMIC SYMMETRY THEORY

The dynamic symmetry theory is a main theory for evaluating the student's aesthetic in photography and the concept of photographers reflexed from the documentaries films in this article, after screening we analysis about the story and concepts together in class and show the element of dynamic symmetry from the photography in the film

Finding Vivienne Maier tell the story about women street photographer, it's starts to narrated about a mysterious nanny, who secretly took over 100,000 photographs that were hidden in storage lockers and, discovered decades later, is now among the 20th century's greatest photographers.[3] And The Salt of the Earth tell the story about the Brazilian photographer Sebastião Salgado, the story follows Salgado as he began a career as an economist with his wife, Lélia, at his side. During a stint in Paris, Lélia bought a camera and Salgado discovered his love of photography.[4] he has traveled in over 120 countries for his photographic projects and his style mixed with social documentary photographer, nature photographer and photojournalist. After screening in class we analysis the aesthetics from the 2 photographers works with the The Elements of Dynamic Symmetry by Jay Hambrige, he say "Dynamic symmetry in nature is the type of orderly arrangement of members of an organism such as we find in a shell or the adjustment of leaves on a plant. There is a great difference between this and the static type. The dynamic is a symmetry suggestive of life and movement."

The topics discussed in class between the theory and the photographers works are follows:

A. Diagonals

Sebastião Salgado, Boys Fleeing from Southern Sudan, 1993 [5]

Vivian Maier, Street 5, 1954, New York, NY [6]

B. Leading Lines

Sebastião Salgado, Church Gate Station, Western Railroad Line, Bombay, India, 1995 [7]

Vivian Maier, March 18, 1955, New York, NY [8]

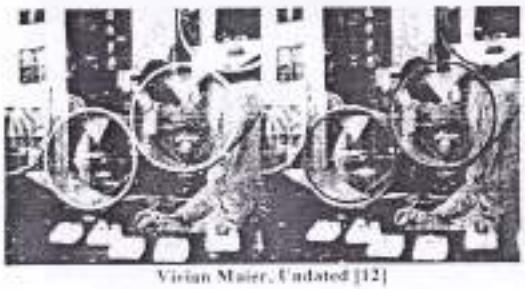
C. Figure to Ground

Sebastiao Salgado, Africa, Korem camp, Ethiopia, 1984 [9]

Vivian Maier, Vancouver, Canada [10]

D. Curves

Sebastião Salgado, Zo'e Group, State of Para, Brazil, 2009 [11]

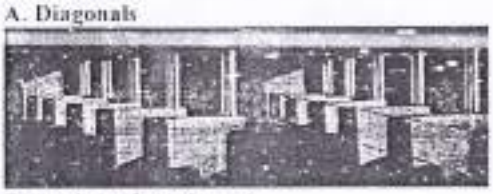


Vivian Maier, Undated [12]

IV. ANALYSIS PHOTOGRAPHY'S WORK OF THE STUDENT WITH DYNAMIC SYMMETRY THEORY

After screening and analysis class, I assignment the homework to students with the topic "the communities around us" the student can create freestyle of concept and the place for taking the picture. In one week, there are many picture that took for students and give us a short concept or the name of them picture that inspired with the concept and style from 2 documentary films. In the class we analysis our picture with the dynamic symmetry theory by Jay Hambrige. for example of student's works:

A. Diagonals

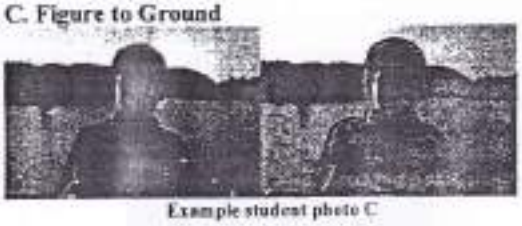


Example student photo A

B. Leading Lines

Example student photo B

C. Figure to Ground



Example student photo C

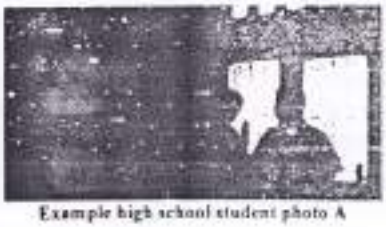
D. Curves

Example student photo D

Students not apply only the concepts from the cinematic methods in documentaries films to create their own photography and they can develop their work with the concept for their communities to the academic terms and one of student won the special prize in conferences and publication in the proceeding of the 1st national conference on fine and applied arts 2018 in Suan Sunandha Rajabhat University, Thailand. The picture name "The Driver" by Sorranut Kongsri with the concept about the class of social context in Thailand.

Sorranut Kongsri, The Driver, Bangkok, Thailand, 2018 [13]

And then, they create a short course for community project and workshop with the high school student for the basics skill in photography and the concept of the community in the high school through the aspect of the high school student.



Example high school student photo A

Example high school student photo B

Example high school student photo C

CONCLUSION

Finally, I found 3 aspect from the research "The Visualization of Photography Learning Through Cinematic Methods" following: 1) The student in photography class can learn the concept of the community and social context from the cinematic methods in the documentary films 2) The student can develop their photography work in class for community project by their workshop. 3) The student can create a good concept from their photography work in classes to present in conferences and publication in the academic proceeding.

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★★★

APPLYING OPERATIONS RESEARCH TECHNIQUES IN COURSE SCHEDULING IN THE HIGHER EDUCATION SYSTEM

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Abstract - Nationwide, on average only 34 percent of bachelor's degree seeking students graduate within four years. In some of California's large public universities, the 4-year graduation rate has lingered below 20% in the past decade. We found that there are two central reasons that students don't complete college, and they typically operate in tandem: inadequate preparation (non-completion of courses) and not getting correct courses at the right time. Our research apply process analysis techniques to examine curricular structure and assess the resulting capacity of students' probability of graduating in four years given the historical levels of academic preparation. We then use line balancing and critical path techniques to inform course scheduling, and establish key performance milestones for each degree roadmap investigated. Our research findings can assist university administrators to better understand the problem and thus make better decisions accordingly.

PERSONALITY IMPROVEMENT AS THE KEY SUCCESS OF HUMAN CAPITAL ENHANCEMENT

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Abstract - Personality improvement is the one of the most important key successes in modern business management, especially human capital enhancement. This was a qualitative research. By utilizing an in-depth interview and focus group with various director of human resources of many organization who had a training in personality improvement, the conclusion of personality improvement as key success of human capital enhancement emerged. A total of 20 key informants was selected to participate in the focus group. In addition, the data collection process was conducted with both primary and secondary information and informants. The findings revealed that personality improvement training helped to increase self-confidence, high self-esteem, ability to present themselves, and the willingness to serve customers. There were many positive things about personality improvement in both management level and staff level.

Keywords - Personality Improvement, Strategies, Enhancement, Self-Confidence

IMAGE FACTORS AND SERVICE FACTORS AFFECTING DOMESTIC PASSENGERS AT THAI INTERNATIONAL AIRPORTS

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Abstract - Thai international airports are very busy during the last two or three decades. The growth of both domestic and international passengers requires better services and better images. The purposes of this research were to investigate the model of image factors and service factors that affecting both domestic and international passengers of Thai International Airports. This research was designed to be a mixed research method by utilizing both quantitative and qualitative to seek for the results. Major problems and obstacles of image and service factors were studied and investigated from sample groups, informants, and primarily & secondary data. Purposive sampling was conducted to obtain the important 11 informants. Content validity, reliability, and practicality were tested with a pilot study. A period of study covered one year from data collection until reach the conclusion. The benefits of this research included better information to enhance the marketing strategic plans, as well as management plan to improve Thai International Airports to be one of the best international airports of ASEAN

Keywords – Thai International Airports, Image Factors, Service Factors, Passengers

COMPUTER ROOM USERS' LEVEL OF SATISFACTION OF THE SERVICE AND FACILITY

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Abstract - This was a survey research of computer room users' level of satisfaction. The population included all students who frequently used the computer room of SuanSunandhaRajabhat University. There were many reasons for student to use computer rooms. The main objective of this survey research paper was to investigate the level of satisfaction of computer users who frequently used the computer room and find ways to improve the quality of service and enhance the functional of facilities. This research was conducted with a qualitative research. The population of this study included all students of SuanSunandhaRajabhat University. A total of 20 students from various faculties who were willingly participated in an in-depth interview and focus group. The findings revealed that students all agreed that they were satisfied with the new computer room and facilities but wanted to have more times to use the computer room.

Keywords - Service, Quality, Computer Room, Satisfaction.

FACTORS OF SUCCESS OF ASEAN CAMP

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Abstract - Each camp requires to understand the factors of success to implement the management of the camp successfully. The aims of this research study was to investigate the factors of success in implementation of ASEAN camp. The level of satisfaction of students, who participated in the ASEAN camp which aimed to prepare them for the readiness of AEC, was one way to measure the success of the camp but key success factors was another way to measure success. The population of this study included all students who participated in the activities of the ASEAN camp during April, 2017. Based on the survey of 15 students who participated in an in-depth interview and focus group. The findings revealed that factors of success included teamwork, communication, positive activities, commitment, and organization culture.

Keywords - Key Success Factors, ASEAN Camp, Teamwork, Communication

ENGLISH COMMUNICATE IN ASEAN ENGLISH CAMP

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Abstract - The ASEAN English camp was designed to help students to develop knowledge of ASEAN Economic Community as well as improve English communication ability. The objectivesof this research paper was to survey the level of English communication of the students who participated in English Camp V, Thailand. The population of this survey study included all the students of SuanSunandhaRajabhat University who participated in the training and activities of the ASEAN English Camp V during January, 2017. A total of 20 students who participated in focus group and answered the open ended questionnaire, the collected data was analyzed by researcher. The findings revealed there were plenty of opportunity for speaking English in each activity and the majority of students enjoy the new international friends and networks.

Keywords - ASEAN English Camp, International Students, Level of Communication

MANAGEMENT IMPROVEMENT AT ASEAN ENGLISH CAMPS

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Abstract - There are many different ASEAN English camp and the success of each camp depended on the management of the organizers. The aims of this research was to identify the strengths and weaknesses of the management of ASEAN Camps and provide a suggestion and recommendation to improve the level of management to make certain that the new ASEAN English camp will be successful. The population of this survey study included all the students of SuanSunandhaRajabhat University who attended and participated in the training and activities of the ASEAN English Camps during 2016 to 2017. A total of ten students and ten staff who participated in focus group and answered an in-depth interviewquestions, the findings revealedthe major strengths of the management of ASEAN English camps included proper activities, suitable knowledge, high quality services, and better time management. The weaknesses of the management of ASEAN English camps included late in food catering, late in the process of hotel check-in, and bus organization.

Keywords - ASEAN English Camp, Strengths, Weaknesses, Management

KEY FACTORS OF SUCCESS TO RETAIN CUSTOMERS OF LOW COST AIRLINES

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Abstract - Low cost airlines are very successful in Thai domestic Market and ASEAN market. The purposes of this research were to investigate the five key factors of success of many low cost airlines in Thailand from the perspective of international tourists who visited Bangkok, Thailand in the last quarter of 2017. Data collection process were conducted from three important international airports in Thailand Suvannabhum, Don Muang, and Chiang-Mai international Airport. Where independent variables included gender, age, levels of education, occupation, income, country of origin, and expectations and dependent variables included their level of satisfaction, experience and their real experiences during the flight of low cost airline. A purposive and simple random sampling method was used to obtain 400 respondents. The respondents, however, were more male than female in mixed of proportion. The findings revealed that the majority respondents were between 21-40 years old. Most were single with either high school or an undergraduate degree. The findings also revealed that the majority of respondents regularly use low cost airlines mainly because of low ticket price, available of flights, and channel of buying tickets. The majority came to Bangkok more than one time and spent about 30 days in Thailand.

Keywords - Key Factors of Success, Low Cost Airlines, International Passengers

DETERMINATION OF TRAFFIC SAFETY WITH METHODS ALTERNATIVE TO TRADITIONAL METHODS

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Abstract- Every year, hundreds of thousands of people die in traffic accidents and millions are injured worldwide. In Turkey, more than 5 thousand people die in traffic accidents and 200 thousand people get serious injured every year. When indirect losses in the society (disabilities occurring as a result of accidents, social and psychological pain caused by deaths or injuries) are also added to the great economic losses, which are caused by these accidents, it is obvious that no countries can be indifferent to traffic accidents.Traditionally, the numbers of casualties and accidents are explained with the proportional terms such as the number of casualties per kilometer traveled, per the number of registered vehicles or per population. However, these proportions cannot help us so much to examine the degree or level of the road traffic safety. Especially over the recent years, several indicators have started to be determined for examining the factors that influence the accidents and making comparison easily. Indicators, which provide a more detailed view, may carry the advantage of determining the problem before the results of the accidents.Together with this study, the factors which influence the transportation safety of 81 cities in Turkey were firstly analyzed for 2010 through the Data Envelopment Analysis (DEA). After the determination of the efficiency of the cities with this analysis, they were put in order with the Super-efficiency (Andersen and Petersen-AP) method. Secondly, variables were analyzed with the Analytical Hierarchical Process (AHP) and cities were put in order. Then, the city orders were compared to the orders defined by the traditional method. An attempt was made to reveal the similarities and differences of the cities according to the analysis methods.

Keywords- AHP, DEA, Traffic Accidents, Traditional Methods, Turkey.

I. INTRODUCTION

It is predicted that 500 thousand people die and 15 million people get injured in traffic accidents worldwide every year [1]-[2]. It is known that annual cost of the traffic accidents exceeds 130 billion in the European Union and this amount is more than 1% of the Union's Gross Incomes[3]. In Turkey, more than 5 thousand people die and 200thousandpeople get injured in traffic accident every year. In other words, approximately 10 people die and more than 500 people are injured on the road everyday [4].When indirect losses in the society (disabilities occurring as a result of accidents, social and psychological pain caused by deaths or injuries) are also added to the great economic losses, which are caused by these accidents, it is obvious that no countries can be indifferent to traffic accidents.Traffic safety can be described as a dimension of the numbers of casualties and accidents generally caused by the accidents that occur within a certain time frame, mostly at times like weekend or holidays, when the traffic peaks, or a time frame such as a month/year. Traditionally, the numbers of casualties and accidents are explained with the proportional terms such as the number of casualties per kilometer traveled, per the number of registered vehicles or per population. These proportions are used to observe the trend within time. An increase in this trend generally points at a decrease in the safety, otherwise, at a development in the safety. However, these proportions cannot help us so much to examine the degree or level of the road traffic safety [5].Moreover, accident statistics, which are frequently applied, have some disadvantages such as random fluctuation, reliable recording and uniformity restriction in definitions. In addition to injury or accident data, many indicators were defined to compare the safety level and to measure the causality related to injuries or accidents or understand the processes causing accidents. Indicators that provide a more detailed view may carry the advantage of determining the problem before the results of the accidents [6]. Attempts were made to determine various road safety indicators and road safety levels with different analyses, which are applied to these indicators, in order to examine the degree or level of the road traffic safety over time. Not only the number of accidents was adhered to thanks to these studies, but also an alternative measuring and recommendation field was developed for safety [5].According to the recent studies and assessments, accidents don't have only one cause and it is quite difficult to select a cause factor which is more important than the others. But many studies and theories presented that a combination of 5 main dimensions (human, vehicle, environment, road, system) led to accidents. These dimensions are not completely independent from each other and there are many factors that influence each dimension [7].Therefore, road safety is a complicated matter affected by countless risk factors. The best way of understanding what causes an accident is the examination of the factors that lead to it [7]-[8]-[9]-[10].The factors that show influence as per the risk

areas of the cities were analyzed with this study using 'Data Envelopment Analysis (DEA)' and 'Analytical Hierarchical Process (AHP)'. 81 cities of Turkey obtained scores according to their risk values and put in order in respect of these scores. Then, city orders were compared to their risk orders with the traditional method and an attempt was made to put forth the similarities and differences.

This study may pioneer the development of more efficient and sustainable policy and infrastructure projects for local and national politicians. In line with this goal and grounding on the selected variables, our primary objective is to determine the safety levels of the cities with two analyses (DEA and AHP) that are alternative to traditional methods and present the similarities and differences of the cities as per each method by putting the cities in order accordingly.

II. DATA ENVELOPMENT ANALYSIS (DEA)

Data envelopment analysis, which was developed by A.Charnes, W.W.Cooper and E. Rhodes, was used in many cases from the efficiency measurement of the police department in England to that of the banks in Cyprus and Canada and universities in America, England and France [11].
DEA is an efficiency measurement technique without parameters developed for measuring the relative efficiency of the economic decision units which resemble each other in terms of the products or services they produce [12].

Weights are internally obtained from the dataset to get the best possible score for a country/region/city in the DEA. Meaning of these weights explains what factors the performance of a country/region/city relatively depends on. This method results in weights as to the most appropriate country/region/city [13].
The possible score is determined for that country/region/city with a range of the weights obtained. Hermans et al.[14]

specified their study purpose as the determination of a direction for people making policy about the actions needed for road safety level on the basis of the DEA. Good and bad aspects of road safety were defined for every country in the model based on outputs.
They constructed a model with the DEA including road safety scores for every country taking the related road safety information for many countries into account. Shen et al.[15]
analyzed a dataset that consisted of 21 indicators for 26 European countries. They compared these 21 indicators and country performances with the DEA, which is a performance measurement technique. They presented a certain country's comparison of its relative performance with all the other countries on the basis of its self-appreciation as one of the most desirable aspects of the DEA.

III. ANALYTICAL HIERARCHICAL PROCESS (AHP)

Analytical hierarchical operation or process (AHP theory) is a method developed by Saaty in his field at the beginning of 1970s. Then, as understood, his whole objective was to convert the extensive, selected best number of alternatives into a hierarchy that was comprised of various criteria contributing to the goal. Both quantitative and qualitative criteria can be considered [16]. Decision problems are handled within a hierarchical structure and based on the logic of paired comparison. AHP finds the weights of all the criteria defined, options are evaluated again through paired comparison in terms of these criteria and then gain a weight. Paired comparison is the evaluation of which characteristic out of two is more important, how important it is, which one is preferred or dominant [17]. AHP is a comprehensible and popular technique that can be used for very complicated decisions including many levels of the criteria and subcriteria. It was used and stated as a useful means by the researchers for the assessment of indicator weights in internal environment index [18]and Index of Environmental Friendliness [19].

IV. MATERIAL AND METHOD

The topic of road safety is a very complicated field containing a high number of accident factors, humans, vehicles, environments, roads and regulations. It is a complicated topic dependent on the selection of a specific indicator (variable) group in the risk performance areas, its type, its accessibility and quality that determine the importance of each variable. Type and number of the variables depend on the countries' development level, motorization level (vehicle rate per population) and data accessibility [7].Accordingly, many variables were defined in a region/country or city representing the factors that influence the accidents. In this study, the data regarding the employment rate (%), transportation within consumption expenditures (%), alcohol within consumption expenditures (%), urbanization rate of the cities, highway networks percentage (city and state road, highway), vehicle components, population in respect of their education levels and healthy personnel (number of specialist physicians, doctors, dentists and hospital beds etc.), which belonged to 2010 and were used for 81 cities, were obtained from the Turkish Statistical Institute. Again in the study, the data about the number of accidents, red light violation, exceeding the speed limit from 10% up to 30% (512A), exceeding the speed limit by more than 30% (512B) were taken from the General Directorate Of Security (GDO) for 81 cities and the same year.81 cities of Turkey were selected for 2010 as DMU with the Data Envelopment Analysis. Economic,socio-demographic, transportation, health and education indicators of the DMUs, which were thought to

represent the best regarding the main components named as road safety risk areas, were selected for each DMU (city) and activity scores were found with 18 inputs and 5 outputs, which were thought to represent these risk areas in the best way. Information about the input and output variables used in the study are presented in **Table 1**. Fixed-yield model (CRS)

NAME OF INPUT-VARIABLE		DATA BANK	UNIT
ECONOMIC INDICATORS			
F1	Employment participation rate	TSI	%
F2	Employment Rate	TSI	%
F3	Transportation Within Consumption Expenditures	TSI	%
F4	Alcohol Within Consumption Expenditures	TSI	%
DEMOGRAPHICAL INDICATORS			
D1	Population	TSI	Number
D2	Population density (number of people per km²)	TSI	Number
D3	Proportion of the city population within the total population	TSI	%
TRANSPORTATION INDICATORS			
T1	Component of vehicle (Cars, Minibuses, Buses, Trucks, etc.)	TSI	Number
T2	Length of road (City, Highway, village)	TSI	Km
T3	Number of cars per person	TSI	Number
T4	Red Light Violation	TSI	Number
T5	Exceeding the Speed Limit from 10% up to 30% (Including 30) (512A	GDS	Number
T6	Exceeding the Speed Limit by more than 30% (512A)	GDS	Number
T7	Other Rule Violations	GDS	Number
HEALTH INDICATORS			
S1	Number of (hospital beds, dr, Specialist dr, dentist etc.)	TSI	Number
EDUCATION INDICATORS			
E1	Number of (Illiterate,Primary school graduate, Unknown)	TSI	Number
E2	Number of (Primary education graduate, Secondary [illegible] equivalent school graduate, High school or equivalent school graduate)	TSI	Number
E3	Number of (Academy or faculty graduate, Master graduate, PhD graduate)	TSI	Number
NAME OF OUTPUT-VARIABLE			
F5	Health Within Consumption Expenditures	TSI	%
T8	Number of Accidents	TSI	Number
T9	Number of Convicts in Prison Due to Traffic Fine 2008	TSI	Number
T 10	Traffic Risk (number of losses per 10.000 motor vehicles)	GDS-TSI	Number
T 11	Personal Risk (number of losses per 100.000 people)	GDS-TSI	Number

Table1.Input-Output Variables and Abbreviation Codes Used in the Analysis

was used in the study in respect of the input-oriented scale [20].Again, 81 cities of Turkey were selected for the AHP and 44 factors were weighed according to their risk areas. Information about the variables/indicators that belong to the data set used in the study is presented in Table 2.

VARIABLE NAME		DATA BANK	UNIT
DEMOGRAPHICAL INDICATORS			
D1	Population	TSI	Number
D2	Population density (number of people per km²)	TSI	Number
D3	Proportion of the city population within the total population	TSI	%
D4	Socio-Economic Development Order of Cities-2003	GPO	Number
TRANSPORTATION INDICATORS			
TR1	Number of Cars	TSI	Number
TR2	Number of Minibuses	TSI	Number
TR3	Number of Buses	TSI	Number
TR4	Number of Pickup Trucks	TSI	Number
TR5	Number of Trucks	TSI	Number
TR6	Number of Motorcycles	TSI	Number
TR7	City and state road	TSI	Km
TR8	Highway	TSI	Km
TR9	Village road	TSI	Km
TRANSPORTATION INFRASTRUCTURE INDICATORS			
TI1	Number of Accidents	TSI	Number
TI2	Number of cars per person	TSI	Number
TI3	Number of Convicts in Prison Due to Traffic Fine 2008	TSI	Number
TI4	Red Light Violation	TSI	Number
TI5	Exceeding the Speed Limit from10% up to 30% (Including 30) (512A)	TSI	Number
TI6	Exceeding the Speed Limit by more than 30% (512A)	TSI	Number
TI7	Other Rule Violations	TSI	Number
TI8	Traffic Risk (number of losses per 10.000 motor vehicles)	TSI- GDS	Number
TI9	Personal Risk (number of losses per 100.000 people)	TSI- GDS	Number
ECONOMIC INDICATORS			
F1	GDP per Capita	TSI	Million TL
F2	Unemployment rate	TSI	%
F3	Employment participation rate (15 years and above)	TSI	%
F4	Employment Rate	TSI	%
F5	Transportation Within Consumption Expenditures	TSI	%
F6	Health Within consumption Expenditures	TSI	%
F7	Alcohol Within consumption Expenditures	TSI	%
HEALTH INDICATORS			
H1	Number of Hospital Beds	TSI	Number
H2	Number of Doctors	TSI	Number
H3	Number of Specialist Physicians	TSI	Number
H4	Number of Dentists	TSI	Number
H5	Number of Pharmacists	TSI	Number
H6	Number of Nurses	TSI	Number
EDUCATION INDICATORS			

E1	(15 Years and Above) : Illiterate	TSI	Number
E2	(15 years and above) : Primary school graduate	TSI	Number
E3	(15 years and above) : Primary education graduate	TSI	Number
E4	(15 years and above) : Secondary school or equivalent school graduate	TSI	Number
E5	(15 years and above) : High school or equivalent school graduate	TSI	Number
E6	(15 years and above) : Academy or faculty graduate	TSI	Number
E7	(15 years and above) : Master graduate	TSI	Number
E8	(15 years and above) : PhD graduate	TSI	Number
E9	Educational status (15 years and above) : Unknown	TSI	Number

Table 2.Variables and Abbreviation Codes Used in the AHP Analysis

The analysis was conducted for 2010. First of all, the problem (goal) was determined in the program. It was named as road safety problem. Then, the hierarchical structure was formed. Cities were put in order from the city with the highest risk to the one with the lowest risk through the AHP, which helps us with putting them in order [20].Monitoring the number of accidents and/or casualties is generally the first preferred way to realize the traffic or safety level in a country/region or city. Traditionally, traffic or safety analyses are conducted according to the casualties order per population or vehicle-km. In this study, casualties rate per vehicle km was selected as the traditional method and it was determined for each city and an arrangement was made from the city with the highest risk towards the city with the least risk; the city orders found with the AHP and DEA were compared.

V. RESULTS AND DISCUSSION

It was preferred to use input-focused CCR model, because supervision over inputs may come into question together with the development of measures and interventions for the represented risk areas in this study. DEA determines the efficient units. However, Andersen-Petersen (AP) method was implemented for finding and putting the units, in other words, efficiency degrees in order. In Table 3, super-efficiency values of the cities are given for 2010. Six matrixes were constituted from 44 variable sets during the Analytical Hierarchical Process (AHP) (with nine rows and nine columns) and weights were given to the highest population (0.346), transportation infrastructure (0.204), and transportation (0.187), economic indicators (0.012), health (0.079) and lastly education (0.060) as a result of the AHP. City orders were set through the calculation of these weights and standardized values of each variable from 2010. In Table 3, city orders are given as per the AHP for 2010.

No	City Name	DEA Order	AHP Order	Traditional Order
1	İstanbul	4	1	78
2	Ankara	6	2	60
3	İzmir	56	3	68
4	Bursa	63	4	5
5	Kocaeli	7	6	79
6	Antalya	19	5	42
7	Adana	73	7	45
8	Mersin	28	8	61
9	Konya	24	9	52
10	Gaziantep	49	10	59
11	Kayseri	53	11	51
12	Denizli	46	13	50
13	Eskişehir	68	17	54
14	Samsun	58	16	63
15	Manisa	34	14	33
16	Sakarya	20	12	71
17	Aydın	31	15	55
18	Muğla	25	18	57
19	Balıkesir	70	19	47
20	Tekirdağ	43	21	70
21	Hatay	42	20	77
22	Bolu	16	26	67
23	Yalova	5	22	69
24	Diyarbakır	18	23	31
25	Edirne	15	30	74
26	Kırıkkale	32	24	80
27	Osmaniye	50	29	26
28	Trabzon	67	28	65
29	Kırklareli	30	35	19
30	Sivas	9	25	18
31	Malatya	78	37	20
32	Kahramanmaraş	29	27	56
No	City	DEA	AHP	Traditional

	Name	Order	Order	Order
33	Elazığ	80	31	11
34	Çorum	59	34	49
35	Karabük	51	32	24
36	Isparta	76	33	41
37	Bilecik	45	42	35
38	Şanlıurfa	27	38	29
39	Ordu	66	36	22
40	Zonguldak	65	41	32
41	Uşak	61	44	28
42	Düzce	39	40	76
43	Erzurum	57	39	16
44	Kütahya	71	46	27
45	Amasya	62	52	53
46	Rize	47	43	21
47	Tokat	40	51	9
48	Karaman	35	47	10
49	Burdur	75	58	34
50	Giresun	55	45	36
51	Kastamonu	77	49	17
52	Çanakkale	60	56	37
53	**Kırşehir**	**81**	**50**	**1**
54	Afyonkarahisar	41	54	39
55	Çankırı	22	55	64
56	Adıyaman	54	62	43
57	Batman	69	53	75
58	Van	74	48	46
59	Yozgat	26	57	62
60	Aksaray	64	60	30
61	Nevşehir	13	61	12
62	Erzincan	23	59	13
63	Tunceli	3	67	8
64	Artvin	48	66	38
65	Kilis	14	64	6
66	Mardin	72	71	40
67	Şırnak	8	72	72
68	Siirt	10	63	48
69	Siirt	36	73	14
70	Bingöl	17	68	15
71	Ardahan	2	79	23
72	Hakkâri	1	74	2
73	Bitlis	33	69	3
74	Gümüşhane	21	75	7
75	Ağrı	37	70	66
76	Bayburt	12	78	25
77	Bartın	11	77	73
78	Iğdır	52	76	81
79	Kars	38	80	58
80	Muş	44	81	4
81	Niğde	79	65	44

Table 3.City Orders In Reference to the DEA, AHP and Traditional Method

Instead of the traditionally-used indicators too less related to traffic safety or only such as the accident rates, city scores were formed explaining the main parameters of the road safety with variables in relation to people, vehicles and roads countrywide and covering the whole country by existing for 81 cities. Results are given in Table 3together with the orders traditionally formed with the number of losses per vehicle km. When the order results were checked, Istanbul, Ankara, Izmir, Bursa, Kocaeli, Antalya, Adana, Mersin, Konya and Gaziantep were found in the more risky city group as a result of the AHP analysis. The common point of these cities is the fact that the cities including the capital cities of Turkey - Ankara - which are economic leaders of the country were found much more risky than the eastern and southeastern cities that are way much lower than them in terms of economy, population, education and infrastructure. Problems draw attention in Hakkâri, Ardahan and Tunceli as a result of the DEA analysis. It wasn't surprising for the cities like Istanbul, Ankara and Kocaeli, which were again at the top, to appear at the top due to their dense population, mobility and motorization. Wegman et.al.[21]stated that the order obtained from different analyses wouldn't be the same on account of various reasons (for example, data quality, analysis method, random variation in the data etc.). Gitelman et al.[22] asserted that it wasn't an obligation for the analysis results they developed to be similar to the traditional order based only on death, besides, different order results would be obtained from different analyses. Hermans et al. [23] stated that the order might be influenced through the selected analysis method.

CONCLUSIONS and SUGGESTIONS

Attempts were made with this study to determine which factor of the considered city has a problem and to put the cities in order according to their risk areas without staying dependent only on the number of accidents, but also taking the other influential factors into account. For instance, the place ofIstanbul was determined as 78 in the traditional method (number of casualties/vehicle-km). How correct it is to say considering this result that Istanbul is an extremely reliable city of Turkey in terms of traffic safety or it has solved the traffic problem. However, numbers reflect a more realistic traffic problem when the other analyses are checked.

Usage of the indicator term has been increasing in recent years. Using this term is quite an important advantage to create awareness in policymakers and communication means. Propensities can be defined, problems can be predicted, policy objectives and priorities can be determined and the effect of the evaluated precautions can easily be measured together with this advantage brought by the expression convenience.

The studies show that an increase occurs in the number of accidents in parallel to the increase in the employment rate, urbanization and city and state roads. This situation resembles the developing countries where the national income per capita

increases and rapid urbanization and vehicle ownership are in tendency to increase. The number of accidents decreases as the number of educated people increases. In this case, the first urgent thing to do is to make an efficient transportation plan considering the geographical and demographic characteristics of each region together with the interregional principle of equality in Turkey. It is of vital importance for every individual to try to prevent such a danger beforehand when it is supposed that everybody in Turkey and around the world has a high chance of having an accident right now.

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