The Impacts of Pollution News on Tourism:

A Case of PM 2.5 Fine Dust in Thailand

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Abstract— The purposes of this research were to measure and compare the effects of pollution news on audiences' attitudes toward tourism in Thailand. One hundred and fifteen foreign students were selected to determine whether their attitudes were changed after viewing the news. Statistical instruments such as mean, standard deviation, and t-test with the significant level at 0.05 were selected to complete the process of data analysis of pretest and posttest. The results found that after viewing the news, the level of audience attitudes and intention significantly changed from positive country image to negative country image. However, gender was not a significant factor. This study found that male and female in both pretest and posttest were not significantly different in overall perspective, except for some issues. In pretest, female had significantly less positive country image of Thailand on environment issue than those of male. In posttest, female had more significantly negative country image of Thailand on both environment and safety issues than those of male.

Keywords—**Country image, Country of Destination, Gender Difference, Pollution News, Thailand.**

I. Introduction

According to MasterCard Destination Cities Index of 2018, Bangkok continued to remain number one as the top destination countries in the world that tourists chose to visit the most for the third consecutive year. It had roughly 20 million visitors who stayed at least one night in Bangkok [1]. The revenue of tourism in Thailand from both foreign and domestic tourists combined was estimated to be USD 82 billion to the country which was accounted for about 18 percent of country's GDP [2]. In addition, tourism not only generates income to the country or creates jobs to Thai people, but also introduces country image to the world.

To stay competitive and maintain country's source of income, Thailand not only has to promote its tourism, but also prevent negative image of the country. However, the recent air pollution seriously hurts country image of Thailand.

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The PM 2.5 fine dust refers to atmospheric particulate matter (PM) that have a diameter of less than 2.5 micrometers, which is about 3% the diameter of a human hair.

The PM 2.5 fine dust is dangerous to human health. Studies have found a close link between exposure to fine particles and premature death from heart and lung disease [3]. To measure how healthy the air, The United States Environmental Protection Agency (EPA) developed an Air Quality Index (AQI) that was used to report air quality [4]. This AQI was divided into six categories indicating increasing levels of health concern and it was showed in Table 1.

TABLE I
AIR QUALITY INDEX DEVELOPED BY EPA

Air Quality Index	Levels of Health Concern
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

Source: United States Environmental Protection Agency. (2012).
Air Quality Index (AQI) Basics [4].

In Bangkok, the air pollution contained PM 2.5 fine dust had been reported since December 2018 through February 2019. Some areas in Bangkok had AQI (PM 2.5) reached a peak of nearly 400 [5]. In March 2019, one of the most popular tourist cities, Chiang Mai, had the worst AQI in the world [6]. The impacts of air pollution news led to the shortage of air masks and air purifiers in Thailand during that period of time. Moreover, a research institute in Thailand estimated that air pollution could cost Thailand USD 220 million in losses for the healthcare and tourism sectors due to the impact of the recent PM2.5 crisis [7].

This study would explore how much the air pollution news could affect foreigner's perception about country image of Thailand, and consequently change the tourists' decision the choose Thailand as the country of destination.

II. Literature Review

A. *Country Image*

Country image was a representation of totality of what a person already knew or perceived about that country from different sources of information such as news, documentary, drama, and other entertainments [8]. By this meaning, country image was a perception of individual's experience. Previous studies found that country image of Thailand were mostly were positive image. For example, Rittichainuwat et al. (2001) found a positive image of Thailand as a rich cultural, natural, and historical country [9]. Tapachai and Waryszak also found the positive image of Thailand such as friendliness of Thai people, Thai food, historical sites, natural scenery, exotic culture, and competitive cost of travelling [10].

However, the recent news about air pollution in Thailand might have significant impacts on Tourists' confidence and Thailand's country image. In 2012, Tourism Authority of Thailand (TAT) conducted a survey on country image of Thailand found that safety was the primary concern for foreign tourists visiting Thailand. Also some tourists had the least confidence in visiting Thailand because of previous bad experiences with fraud and service misunderstandings [11].

A country image not always come from individual's direct experience, but can also be conveyed via a media news viewing. Since mass media was considered to be a consumer product, consuming media news could also convey a country image similarly to consuming a product. Thus, it seemed to be reasonable to assume that audience could perceive a country image by their own experience of consuming the media news according to the concept of country image by Nagashima (1970) [12].

B. *Social Representation Theory*

The term social representation to psychological research field was originally found in the work of Serge Moscovici [13]. Later in 1996, Pearce applied the social representation theory to tourism research [14]. Representation refers to the construction of reality such as country, places, people, events, culture, and other abstract concepts, from media which may or may not be exactly the same things in real world. The social representation theory is the study of one particular person, people, groups, or country that being represented to audiences in the media. Thus one version of reality only, not all, was produced and showed on media.

Social presentation theory can be applied in mass media such as movies, advertising, news, and videos. it creates one version of reality as the media producers wanted. On the other hand, the media producers can manipulate how the visual representations will be showed to audiences. In this study, air pollution news was one reality of Thailand that still had many other realities of the country.

In general, one piece of news may contain an icon of the country image. The icon is a symbolic meaning or theme, featured event, place, people, historical or cultural traits viewed in that media. By this function, when the audiences views a piece of news about a country, they may perceived one icon such as place, people, the way of life, technology, or safety of a community, of the country.

In addition, the more time audiences spend living in the media world, the more likely they are to believe social reality portrayed on media is the real according to the cultivation theory which studied the long-term effects of consuming media news [15]. Therefore, when audiences consume bad news of the country for a long time, they may presume a bad icon of the country such as unsafe place, unfriendly people, unsecure of life are really the whole reality of the country. This effect may totally lead to misunderstanding of country image perception.

C. *The Effects of Media Experience in Tourism*

Studies found that media had a great influence on country of destination selection during the process of consumers' decision-making [16]. Kim and Richardson (2002) found that media could generate both positive country image and negative country image [17]. In Thailand, the news about air pollution had been spread all over the world by mainstream news media such as CNN and Reuters [18] [19]. The news reported that to air pollution in Bangkok was so bad that government decided to close schools for a week due to healthy reasons. This kind of pollution news certainly scared some tourists who might have a plan to travel to Thailand. As mentioned earlier, a research institute in Thailand estimated that air pollution could cost Thailand USD 220 million in losses for the healthcare and tourism sectors due to the impact of the recent PM2.5 crisis [7].

According to Butler (1990), the media news in video format had the most significant impacts on audiences' decision to select country of destination for travelling [20]. Moreover, Jeffers (1997) found that the audiences were able to determine whether they would like to visit the country showed in the media from a single view only [16].

Gender might be another factor that could be differently affected by influence of media viewing due to the different characteristic of male and female. Previous studies found mix results on this issue. Some found significant differences between male and female in perceptions from media effects while the others found only little difference in the level of the effect between two different genders [21] [22].

III. Research Purposes and Hypotheses

This study assumed that the negative country image of Thailand from the air pollution news video that foreign audiences viewed could discourage them to visit Thailand and eventually lead theme not to choose Thailand as a country of destination for travelling. Therefore, the purposes of this research were the followings;

1. To measure and compare the attitudes toward country image and travelling intention before and after viewing the air pollution news video.

2. To measure and compare the attitudes toward country image and travelling intention between male and female before and after viewing the air pollution news video.

Based on the literature review, the hypotheses of this study were the followings;

H_1 The attitudes toward country image and travelling intention before and after viewing the air pollution news video were different.

H_2 The attitudes toward country image and travelling intention from viewing the air pollution news video of male and female were different.

IV. **Methodology**

A. *Research Design*

The target group of this study was the foreign students in international college. The data collection process was divided into two phases; in-depth interview and experimental study. In the first phase, five foreign students from International College, Bangkok University, were select by purposive sampling. The data collected from in-depth interview then was used to construct the questionnaire on experimental study in the second phase.

In experimental study, the data was collected by purposive sampling as well. The 150 questionnaires were distributed to foreign students in a classroom of International College, Bangkok University. Only 115 questionnaires were used due to the selection process. The study needed only foreign students who had little knowledge about the news before. The respondents were asked to fill-in the questionnaires first before viewing the video. Right after viewing the video, the respondents were asked to fill-in the questionnaires again.

B. *Survey Instrument*

Three consecutive series of air pollution news and questionnaires were used as tools for study. The three consecutive series of video presented Thailand icons; places, transportation, environment, and safety. The four series of air pollution news used in this study were the followings;

1) "Toxic Air Shuts Hundreds of Schools in Bangkok, Thailand" on January 30th, 2019. The video duration was 2 minutes and 8 seconds from Euronews English (France).

2) "Thai Capital Experiencing Worst-ever Air Pollution, Ultra Fine Dust Levels" on January 30th, 2019. The video duration was 43 seconds from Arirang News English (South Korea).

3) "Drones Take to the Sky in Thailand to Combat Air Pollution" on February 1st, 2019. The video duration was 1 minute and 46 seconds from Al Jazeera English (Qatar).

The questionnaire consisted of 2 major parts; icons and effects. The questionnaire was tested for its reliability and had 0.874 and 0.872 reliability of Cronbach's alpha for pretest and posttest. Also, the questionnaire was approved by experts in the related field for its validity. All rated questions were measured on a five-point scale by given 1 as the most disagreement and 5 as the most agreement.

C. *Data Analysis*

The level of attitude toward country image (icons) and travelling intention (effects) was explained in mean and standard deviation. Then, the data of pretest and posttest were analyzed to compare the differences in attitude and intention using t-test with the significance level at 0.05. In addition, the attitude and intention levels of both male and female in pretest and posttest were also compared using t-test with the significant level at 0.05.

V. **Results**

From the total of 115 foreign students as audiences, the attitude differences toward country image and travelling intention of pretest and posttest was showed in table 2.

TABLE II
PRETEST AND POSTTEST OF ATTITUDE AND INTENTION DIFFERENCES

Questions of icons and effects	Pretest		Posttest		
	Mean	S.D.	Mean	S.D.	Sig.
Q1: Thailand is the country of many beautiful places to visit.	4.11	0.825	3.08	1.061	0.000*
Q2: Thailand is the country of convenient transportation.	3.40	0.836	2.51	0.902	0.000*
Q3: Thailand is the country of good environment.	3.24	0.894	2.06	0.881	0.000*
Q4: Thailand is the country of safety and good health.	3.28	0.756	1.76	0.801	0.000*
Q5: I like Thailand.	4.01	0.884	2.80	0.975	0.000*
Q6: I would like to travel to Thailand.	3.98	0.868	2.45	0.948	0.000*

* Significant at 0.05 level

From table 2, the significant difference was found in every question. It meant that the air pollution news did change the attitude toward country image from positive image to less positive image or even negative image on most of issues. The air pollution news also significantly discouraged audiences to

choose the country as visiting destination. When data was divided by gender, the pretest attitudes of 49 male and 66 female audiences were analyzed and showed in table 3.

TABLE III
PRETEST OF ATTITUDE AND INTENTION IN DIFFERENT GENDERS

Questions of icons and effects	Male (n=49)		Female (n=66)		
	Mean	S.D.	Mean	S.D.	Sig.
Q1: Thailand is the country of many beautiful places to visit.	4.20	0.763	4.05	0.867	0.310
Q2: Thailand is the country of convenient transportation.	3.53	0.793	3.30	0.859	0.149
Q3: Thailand is the country of good environment.	3.55	0.891	3.02	0.832	0.001 *
Q4: Thailand is the country of safety and good health.	3.39	0.731	3.20	0.769	0.182
Q5: I like Thailand.	4.06	0.876	3.97	0.894	0.585
Q6: I would like to travel to Thailand.	4.12	0.857	3.88	0.869	0.137

* Significant at 0.05 level

According to table 3, the attitudes toward country image and travelling intention between male and female in pretest were not significantly different in overall perspective, except for environment issue. Female had significantly less positive country image of Thailand on environment issue than those of male. However, since there was no significant different in most of the issues between gender, it meant that both male and female had relatively equivalent background of attitude toward country image and travelling intention before viewing the video. The posttest attitudes of both male and female audiences were analyzed and showed in table 4.

TABLE IV
POSTTEST OF ATTITUDE AND INTENTION IN DIFFERENT GENDERS

Questions of icons and effects	Male (n=49)		Female (n=66)		
	Mean	S.D.	Mean	S.D.	Sig.
Q1: Thailand is the country of many beautiful places to visit.	3.27	1.095	2.94	1.021	0.104
Q2: Thailand is the country of convenient transportation.	2.53	1.002	2.50	0.827	0.858
Q3: Thailand is the country of good environment.	2.31	0.962	1.88	0.775	0.012 *
Q4: Thailand is the country of safety and good health.	2.02	0.878	1.56	0.682	0.002 *
Q5: I like Thailand.	2.90	0.963	2.73	0.985	0.356
Q6: I would like to travel to Thailand.	2.49	1.023	2.42	0.895	0.716

* Significant at 0.05 level

From table 4, after viewing the air pollution news video in posttest, the attitudes toward country image and travelling intention between male and female found no significant difference in overall perspective either. Although video viewing did reduce the positive attitudes toward country image and travelling intention of the audiences, both genders seemed to have relatively equivalent effects, except for environment and safety (good health) issues. Female had more significantly negative country image of Thailand on both environment and safety issues than those of male. However, since there was no significant different in most of the issues between gender, Therefore, gender was not a significant factor of the media news effects in this case.

VI. Conclusion

This study found that the air pollution news video certainly reduced the positive attitudes toward country image and travelling intention as the previously assumed on this study. In fact, the results revealed that it actually could change from positive country image to negative country image, worse impact than previously thought. Consequently, it transformed those attitudes into negative actions. It was likely to discourage more audiences not to travel to Thailand. Again, it confirmed that media news; especially bad news in this case, had a great impact on country image, country of destination, audiences' decision, and finally tourism industry.

The study found that gender was not a significant factor. The air pollution news contributed relatively similar great impacts on both male and female in overall perspective. Both genders were equivalently influenced. Their attitudes and intention were both reduced with no significant difference, except for some issues such as environment and safety (good health) concern in female as showed in research results.

In conclusion, the air pollution news could significantly change from positive to negative attitudes toward country image. Thus, it changed audiences' intention not to choose Thailand as country of destination. However, the air pollution news is only one fraction of the whole reality. To prevent the negative country image, several sectors of the country must help improve such pollution news not to happen in all possible ways. This means the pollution should never happen, since its effects severely hurt tourism industry. Therefore, understanding the effects of air pollution news could turn to be great benefits if the country seriously takes more security measures to increase healthy environment and that should be the long-term solution for the countries that rely on tourism industry.

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