

The Guide to Excellence in Communication Management and Public Relations Tools for Preventing Disasters

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Abstract—Currently many countries have faced natural disasters unavoidably. Natural disasters damaging properties, affecting to victims’ physical and mental health, including causing death. People therefore have to learn how to protect their lives and properties from disasters beforehand. Efficient communication management and public relations tools such as warning sign is an indispensable media which serves as a carrier of essential messages to the public in any emergency moment. The main purpose of this exploratory study is to improve the guide to excellence in communication management for warning signage to prevent casualties. This research investigates people’s perception about warning signage for natural disasters such as tsunami, earth quake and flood. The quantitative survey of 400 respondents in Thailand was used in 2014 to find out how they reacted on the warning signage. This research was developed based on the study symbology development paper of hazard communication. However, it investigated intensely on people’s perception based on their personalities (which were specified by geometrical psychology). The results reveal essential information for public relations practitioners and communication managers to improve the design of tools for natural disasters and it also show that red triangular shape is the shape the majority of people think is the most suitable for warning signage.

Index Terms —Communication Management, Disaster Communication, Public Relations Tool for Disasters, Warning Signage.

I. INTRODUCTION

Nowadays, many countries have faced natural disasters unavoidably. Natural disasters damaging properties, affecting to victims’ physical and mental health, including causing death. People therefore have to learn how to protect their lives and properties from disasters beforehand. Efficient communication management and public relations tools such as warning signage is an indispensable media which serves as a carrier of essential messages to the public in any emergency moment.

II. WARNING SIGN

Warning sign can be considered as a public relations tool for achieving safety in time of crisis during natural disasters.

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The purpose of warning sign is a basic set of strategies to prevent hazards. Warnings are used to provide information, to influence behavior and as a reminder [1]. Previous research by Ongkrutraksa [2] reviewed Aucote, Miner and Dahlhaus [3] who stated that:

Warning signs are used in many cultures to inform the public that a danger is present and how to avoid this danger. Failure to adhere to warning signs can have adverse consequences that may result in serious injury or death. (p. 523)

Currently, there are many different natural disaster warning signs in different countries and locations. Past research about Tsunami warning signs by Scheer, Varela and Eftychidis [4] stated that:

There seem to be many different tsunami signs available around the world; however, since 2008, UNESCO/IOC is encouraging its member states to develop and to use ISO-compliant tsunami signage and symbols in order to promote consistency in understanding and action across local, national, and international jurisdictions. It had been agreed to add three basic signs (see Fig. 1) to the ISO 20712 standard which provides specifications and guidance on safety signs for aquatic hazards [5].



Fig. 1 Tsunami basic signs to the ISO 20712 standard [4]

However, these three signs symbolize a minimum standard; where localization is necessary, depending on local constraints or conditions [4]. In Thailand, the Tsunami warning signs are currently in blue and in square shape that adopted the recommended design from “New Zealand national tsunami signage” recommendations for CDEM Groups (Civil Defence Emergency Management) which is different from what UNESCO/IOC recommended.

Therefore, to avoid confusion about warning signage, this research attempted to find out if localization is necessary for warning sign in Thailand. Since this is an exploratory research on warning signage, this study focused on only the key visual elements of the sign which are color and shape of the sign. The main purpose of this study was to improve the guide to

excellence in communication management for warning signage to prevent casualties. This study also attempted to investigate on people's perception based on their personalities (which were specified by geometrical psychology) toward warning signage for natural disasters such as tsunami, earth quake and flood.

III. LITERATURE REVIEW

Imsuwansakorn [6] found that there are some difficulties in hazard communications through hazard signs in Thailand. Previous studies by Ongkrutraksa & Imsuwansakorn [7] and Ongkrutraksa also indicated that there are more investigations needed to complete the development of effective signs and symbols in Thailand.

Another past research by Fakhruddin & Chivakidakarn [8] suggested that socio-economic change plays significant influence on disaster risk management, thus the current linear model for the assessment tool should be improved. They also suggested that the government need to develop a comprehensive protocol and set of procedures to disseminate warnings.

The current research specifically focused on warning sign for natural disasters such as tsunami, earth quake and flood which is different from previous studies by Imsuwansakorn and Ongkrutraksa & Imsuwansakorn that focused on hazard and evacuation sign for flood crisis.

Personality and shapes

To confirm the results by previous study by Ongkrutraksa & Imsuwansakorn, the current study also used Susan Dellinger's Psycho-geometrics' concept by Dellinger [9] which the university of Tennessee [10] stated that psycho-geometrics' is based on the notion that we tend to be attracted to certain shapes and forms in the environment because of our personalities, attitudes, education and experiences, as well as the ways in which our individual brains function. Different shapes reflect different personalities as follows:

Rectangle is the shape of seeker and explorer, always in searching for ways in which they want to grow and change. Triangle is the representation of leadership. Triangle people are decisive and able to focus on the goal. Square is the shape of organized people and a hard worker. Circle is the people person shape. Circle people listen and communicate well. They like harmony and find the greatest difficulties in dealing with conflict and making unpopular decisions. Squiggle is the shape of creativity. Squiggles always thinking of new ways to do something.

Psychological effect of Colors

Ongkrutraksa reviewed 'Theory of Colors' by Johann Wolfgang von Goethe, from 1810 which he found that different colors have various effects on mood and emotion:

YELLOW always carries with it the nature of brightness, and has a serene, gay, softly exciting character. BLUE is a hue it is powerful — but it is on the negative side, and in its highest purity is, as it were, a stimulating negation. Its appearance, then, is a kind of contradiction between

excitement and repose. RED conveys an impression of gravity and dignity, and at the same time of grace and attractiveness. GREEN has the effect that the eye experiences a distinctly grateful impression from this color. (Popova, [11] para.1-4)

IV. METHODOLOGY

The quantitative survey of 400 respondents (male 43%, female 57%) in Thailand was used in 2014 to find out how they reacted to the warning sign for natural disasters such as tsunami, earth quake and flood. Data was collected by using a questionnaire. The data that used for this research was gathered from set of questionnaires and analyzed through coding and the used of computational program of SPSS (Statistical Package for Social Science) for statistical calculation.

The 400 samples of this research were people who either have had experience (51%) or had no previous experience (49%) in a natural disaster. Moreover, 75% of the samples had experiences that the cost of casualty was more than 5,000 Baht as shown in table 1 below.

TABLE I: THE SAMPLES FREQUENCY AND PERCENTAGE OF EACH TYPES OF PERSONALITIES

Previous experience in a natural disaster	Number of sample	Percent
1. Frequency of natural disaster's experience		
Only once	119	30
More than 1	84	21
Never	197	49
2. The cost of casualty		
Less or equal to 5,000 Baht	50	25
More than 5,000 Baht	153	75

V. RESULTS

The results show that most subjects selected the 3 types of personalities which are 1. Good listener and harmonizer 37% 2. Creative 19% and 3. Leader 18% (table2).

TABLE II: FREQUENCY AND PERCENTAGE OF EACH TYPES OF PERSONALITIES

Type of personalities	Number of subject	Percent
hard worker (square)	54	14
leader (triangle)	70	18
Good listener and harmonizer (circle)	147	37
Explorer (rectangle)	48	12
Creative Squiggle (squiggle)	77	19

To investigate how each types of people responded to warning sign, this research analyzed and divided 3 groups and their positive responses (which are the shapes of sign they think are suitable for warning sign?) to each types of signs as shown in the tables below.

TABLE III: GOOD LISTENER AND HARMONIZER GROUP

Shape of sign	Frequency in percent
Triangle	46
Square	42
Circle	53

TABLE IV: CREATIVE GROUP

Shape of sign	Frequency in percent
Triangle	26
Square	21
Circle	29

TABLE V: GROUP LEADER GROUP

Shape of sign	Frequency in percent
Triangle	31
Square	18
Circle	20

Moreover, this research intends to find out the colors of signs that samples think are the most suitable for each signs. The results show that red is the color the majority of people (all 3 personality groups) think is the most suitable for warning sign. The results in detail are as follows:

TABLE VI: GOOD LISTENER AND HARMONIZER GROUP

Shape of sign	Frequency in percent
Red	74
Yellow	42
Green	13
Dark blue	12

TABLE VII: CREATIVE GROUP

Shape of sign	Frequency in percent
Red	39
Yellow	12
Green	13
Dark blue	11

TABLE VIII: LEADER GROUP

Shape of sign	Frequency in percent
Red	41
Yellow	20
Green	4
Dark blue	5

VI. CONCLUSION AND DISCUSSION

This exploratory study can be concluded that for the warning sign, red triangular shape is what the majority of people (all 3 personality groups) think is the most suitable. The results reveal no significant difference among the 3 personality groups. Majority of respondents preferred “triangle” shape which supports the previous data from Imsuwansakorn which suggested that Thai people preferred edgy shapes more than curvy shapes like circle because they said that the edgy shapes make them feel more cautious and always on their guard.

Most of respondents preferred “red” for warning sign as “red” indicates the attractiveness according to Popova. The results consistent with the past study by Imsuwansakorn which concluded that Thai people preferred bright and warm color tone for warning signs rather than cool tone.

In sum, even the results show that all 3 personality groups preferred the same shape and color of warning sign, but it shows that they all had different preference from the ISO standard warning sign in terms of color. It also indicates that the localization of warning signage especially the color and shape may be needed to excel in communication management and public relations tools for preventing casualties. However, this is research is only an exploratory study, thus, it is recommended to further identify the most effective color and shape for warning sign in a different research methodology and context.

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