LEARN Journal: Language Education and Acquisition Research Network
ISSN: 2630-0672 (Print) | ISSN: 2672-9431 (Online)
Volume: 16, No: 2, July – December 2023

Language Institute, Thammasat University
https://so04.tci-thaijo.org/index.php/LEARN/index

A Diachronic Analysis of Prospect Theory in the Thai Online News during the COVID-19 Pandemic: A Corpus-Driven Study

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APA Citation:
Panyaatisin, K., Piyapasuntra, S., & Angkapanichkit, J. (2023). A diachronic analysis of prospect theory in the Thai online news during the COVID-19 pandemic: A corpus-driven study. *LEARN Journal: Language Education and Acquisition Research Network*, *16*(2), 784-800.

Received
14/04/2023

Received in revised form
09/06/2023

Accepted
25/06/2023

ABSTRACT

This study aims to investigate the linguistic strategies used in public health communication during the COVID-19 pandemic, according to the regulations stipulated by the Center for COVID-19 Situation Administration (CCSA) of Thailand. A corpus of 1.4 million words was retrieved from Thai online mainstream news media written in Thai, and systematically randomized to analyze news content from March 1, 2020, to December 31, 2021. The framework used for analyzing language was the prospect theory, also known as the message-framing effects. This theory refers to choices that are framed or conditioned by language codes that manipulate changes in people's behaviors. Sentences or clauses designated as "one cause" and "one effect" were analyzed based on syntactic criteria, such as causative construction. The framing effect can be divided into two groups: the effect framed by GAIN (positive result) and its counterpart, LOSS (negative result). It was found that the most favorable linguistic strategy was "GAIN" (63%), reflecting positive messages. Based on linguistic evidence, it appears that Thai conventional media convey positive messages, which encompass prevention, risk-aversion, and positive attitude cultivation. The use of gain-framed language devices by agencies may reflect their attempts to generate positive emotions and gain people's trust during stressful situations, as well as to express sympathy and politely respond to the audiences. All things considered, the use of gain-framed-message strategies in Thailand plays a role in pandemic management and protection, contributing to the highly acclaimed and effective public health system it has accorded.

Keywords: COVID-19, prospect theory, message-framing effect, diachronic study

Introduction

During a crisis, the dissemination of health information to the public can significantly impact the well-being of recipients. There are numerous contexts and types of information that audiences must consider when making decisions about whether to follow the suggestions given. Making the right decisions can enhance the well-being of recipients, while making incorrect decisions or failing to act can have negative effects. Even if the information is accurate, approaching the public inappropriately or without careful consideration can result in rejection from the people. Therefore, timely and appropriate health communication strategies are crucial to promoting better decision-making during a crisis.

When communicating health information during a crisis, it is important to consider how communication strategies can be tailored to the public for maximum benefit and efficiency. Additionally, easily accessible health information tends to influence the thoughts, attitudes, and decisions of individuals, especially when it comes from mainstream publications featuring statements from influential members of society, such as government agencies and traditional news resources. In light of this importance, this study attempts to examine the communication strategies used by the media to report on the Thai health crisis caused by the COVID-19 pandemic.

The COVID-19 pandemic was an unprecedented crisis. On March 11, 2020, the World Health Organization (2020) or WHO stated that the coronavirus became a full-scale global crisis, officially naming it as the COVID-19 pandemic. The immeasurable loss of lives, economy, society, and ethics caused by COVID-19 can be attributable to recklessness in assessing and making inappropriate decisions. At the onset of the pandemic, superpower countries paid little attention to COVID-19. According to Roberts (2022), the Trump administration's failure to respond to the COVID-19 pandemic has led to the deaths of over 400,000 Americans, which accounted for 20% of the global death toll. WHO Chief Tedros Adhanom Ghebreyesus (Gregory, 2003) has emphasized that countries must assess the situation carefully and come up with preparedness measures to deal with the threat of COVID-19 at the highest level since the beginning of the outbreak in the first wave to prevent fatalities. Notwithstanding the slightly decreasing severity of the disease, Ghebreyesus cautions against recklessness; it is too soon to declare the world free of COVID-19. Moreover, COVID-19 is a complicated disease making it difficult to be entirely curable. Even after recovery, patients may experience other complications, as demonstrated by Chertow et al. (2021). The characteristics and impact of complications after mild COVID-19 infection remain strong. A cross-study (diachrony) has shown that patients who have recovered may experience complications with brain disorders or other important organs. This suggests that full recovery of COVID-19 is not guaranteed across the board. Further, symptoms of prolonged COVID-19 or other bodily effects may appear in the future, resulting more rigorous procedures must be well in place

COVID-19 is directly impacting the national economy, resulting in unprecedented stagnation and collapse (Roberts, 2022). Interestingly enough, COVID-19 was not considered a serious illness when first reported; its calamitous impact on the economy and society seemed far-fetched. As President Trump has actively announced that this disease is just a kind of Chinese flu and is soon going to disappear naturally (Hart, 2021). It would become an endemic disease that can be cured by a campaign for herd immunity. The severity of the disease would gradually decrease and virtually no one would get sick. Even worse, there have also been many conspiracy theories that view COVID-19 as unreal and having no effect on society at large. However, none of these turned out to be true according to medical science and epidemiology. Therefore, the COVID-19 communication dataset creates a series of dangerous beliefs and spreads so quickly that people are not vigilant. People refused to wear a mask because they viewed it as an annoying practice akin to a sick person and a personal right that cannot be violated (Wong, 2020). In many cases, they were not keeping a distance from each other (physical/social distance). Eventually, the COVID-19 pandemic intensified, with hundreds of thousands of daily infected patients and many deaths. All types of travel had to be terminated. The aviation industry, exports and imports of

goods were halted for more than a year as people feared infection and contamination. In fact, businesses around the world were affected severely. Causing the global economy to suffer from severe recession or even some countries to face bankruptcy due to the epidemic, COVID-19 has wreaked great economic havoc to those countries.

In terms of background and significance of the problem, the impact of the COVID-19 outbreak has caused harm globally, and Thailand is no exception. Like their counterparts, Thai authorities and conventional media have played active roles in imparting knowledge and information pertinent to the pandemic. Since this pandemic is unprecedented and of a global scale, the language used by the authorities and media unavoidably consisted of novel ways of communication. Granted, this paper investigated the linguistic strategies used to impart the pandemic information and measures during the crisis. As such, the researcher is interested in using language attributes and social theories to analyze content from mainstream news agencies in Thailand so as to promote health literacy. These news agencies generated and disseminated information regarding how to use public health communication strategies during the pandemic crisis upon the declaration of COVID-19 as a global pandemic crisis by the WHO and the Center for COVID-19 of Thailand (CCSA).

More specifically, the analytical framework of prospect theory (Tversky & Kahneman, 1981), is pivotal in this study as it is a behavioral economic theory with a direct connection to linguistics (Akl et al., 2011; Kühberger, 1998; Schneider et al., 1995). This theory potentially sheds light on the language strategies leading to the prediction of people's behavior. The principle is to evaluate and categorize the results in GAIN, and LOSS categories. GAIN means a positive result or given the advantage of doing something while LOSS leads to negative results or loss of advantages by vilifying or denying the condition, with both containing similar presuppositions and entailment, realized through different linguistic forms. That is, they function as dependent variables in order to predict results from human decision-making. In addition, the prospect theory influences a decision that may or may not be intentional or even the decision maker's naivety. Consequently, the analysis of prospect theory is instrumental in discussing and comprehending human behavior and a certain level of cognitive systems on a variety of levels.

It is argued that the application of the prospect theory to the analysis of communication strategies in traditional or conventional news (Maryville University, 2021) agencies should be appropriate. This is because the theory allows us to figure out whether GAIN or LOSS strategies would be more frequently used, including any implications. Granted this emphasis, the research question is as follows:

(1) To what extent and whether do the media use the GAIN or LOSS strategies in reporting the pandemic crisis?

(2) What are the implications of the use of such strategies?

Literature review

The prospect theory, pioneered by Tversky and Kahneman (1981), predicts human behavior in order to explain the irrationality of human decision-making that can be influenced by subliminal influences and exert influence over human behavior. The prospect theory is foundational to various ensuing studies that focus on human thinking bias supported by empirical evidence. This means that some propositions may be fallacious, but people continue to hold on to them. This knowledge appears potentially superior to modern economic currents and challenges conventional economic theories such as equilibrium theory (Rabin, 2000), which emphasizes the rationality and effectiveness of human decision-making. A number of researchers have applied and expanded upon this theory. An application, still in principle, adheres to the same two interrelated theories, namely prospect theory and the framing effect or gain and loss.

The prospect theory posits that when human beings are exposed to conditions, particularly by posing a threat to their own live safety, they will react to protect themselves. They tend to avoid taking risks because they fear harm. Therefore, if they have options under risky circumstances, they will opt for the less dangerous option. By contrast, if the stake is more severe

or life-threatening, they will dare to seek for more risky choice, behaviorally, even if some options may not make much mathematical or logical sense.

The framing theory, or message-framed effect, is an experimental method used to test the validity of the prospect theory. The frames, or conditions, used in the experiment should include at least two frames that alter specific characteristics of the target content. The central idea behind this theory is that when the frame is shifted, the outcome varies based on the conditions of the frame. Frames can refer to various things, such as integers, fractions, and linguistic forms, which are presented differently for each frame-conditioned condition. Other examples of frames include the contrasting use of narrative short passages and short instructions. In a nutshell, this approach looks at how different frames affect target content and determines whether or not the decision-making is different.

It should be noted that the propositional, presuppositional and semantic content of these frames are somewhat equivalent; however, the attitude and pragmatic senses may vary. In this paper, the message-framed effects can be divided into two categories, namely GAIN, and LOSS, as previously defined. Gain- and loss-framed messages have become pervasive in our daily lives, appearing in various forms such as visual texts, advertisements, and other general communications found in the media, particularly in marketing and medical fields. An example is provided below (Adapted from Joseph, 2018).

> What brand of yoghurt would you like to purchase?
>
> a. Yogurt A is 80% fat-free.
> b. Yogurt B contains 20% fat.

When we consider both statements, Option a. is the most popular because it presents the benefits or gains, even though both statements have the same mathematical and logical equivalence. Risk reduction is emphasized as a gain frame. Interestingly, negative or unattractive information is seldom selected as the loss frame is triggered. As a result, the use of different language frames can influence how readers behave. As indicated in the above examples, these marketing strategies stemmed from the seminal research concerning the prospect theory in behavioral economics research.

Tversky and Kahneman (1981) administered questionnaires to respondents in their experimental research on prospect theory. Assuming the existence of a horrible epidemic, previously unknown, the mortality rate and risk are extremely high. There were 600 participants in that situation. Later, the production of drug x was successful, but drug x had potentially fatal levels of adverse events. Consequently, the researchers devised two experiments (generated into four programs) with two different frames, namely the GAIN and the LOSS with two distinct language stimuli such as integer number (showing certainty) or fraction (showing possibility) (O'Keefe & Jensen, 2009). The studies show that respondents' risk-taking behavior is influenced by the framing of the choices presented to them. When presented with a low-risk option, respondents are more likely to choose it over a higher-risk option. However, when presented with a high-risk option that also has the potential for high loss, respondents are more likely to take the riskier route, even though both tests share the same mathematical values but differ in linguistic forms.

The foregoing discussion suggests that decision-making is greatly influenced by how messages are framed; people will accordingly make a decision based on the messages they receive. This is even more significant when they are in precarious situations such as the COVID-19 pandemic when a decision could translate into a matter of life and death.

Section 2.1 below discusses the construction and utilization of theory in experimental research. Subsequently, Section 2.2 delves into the use of secondary data and how the prospect theory was applied.

Application of the prospect theory (message-framed effect) in experimental studies

Most of the research on the prospect theory is conducted in Western countries. These studies typically involve experimental work that tests various variables using rigorous research methodologies (Akl et al., 2011; Kühberger, 1998; Schneider et al., 1995). The independent variables can be introduced based on the assigned frames, such as the instructions or narratives related to gain-framed and loss-framed scenarios. Experimental conventions typically test the gain and loss frames separately, using different internal independent variables such as instructions or narratives or demographic factors. The results are then compared to determine which frame is more effective. The choices are made under the same mathematical propositions but with different linguistic forms.

Overall, it has been found that the loss-frame approach is better and more effective in changing people's behavior, choices, and willingness for severe conditions such as life-threatening diseases. In contrast, for mild diseases, disease prevention measures, or some chronic or incurable diseases that are not life-threatening, using the gain-frame approach is more effective. However, the findings of message-framed effects from prior research are diverse and incongruent. This is due to subtle differences in experimental conditions, countries, and cultural backgrounds. It is difficult to conclude which frame will lead to behavioral change, decision-making, effectiveness, and motivation. Moreover, the impact of mood and attitude towards the choice of frame is still inconclusive. There are several domains of the framing studies. For example, Banks et al. (1995) examined the effect of message framing on the persuasion strategy of women over the age of 40 to undergo mammography. Chien and Chang's study (2015) compared the effectiveness of gain-framed and loss-framed persuasive messages for organ donation. Mays and Evans (2017) analyzed the effects of message framing on skin cancer avoidance. Alhabash et al. (2016) conducted a study on alcohol cessation strategies among college students in Pakistan, with a focus on the influence of religious beliefs. In effect, these studies shared one thing in common; that is, they represented experimental studies involving health communication in which the research participants intentionally used specific frames indicative of their changing behaviors.

Research on prospect theory: A descriptive analysis of the secondary data

In addition to classic experimental studies (Tversky & Kahneman 1981), another type of research on prospect theory involves descriptive analysis of secondary data, which aims to classify and generalize outcomes. The dependent variables include how the content is framed and how it subsequently affects the choice of gain or loss. The independent variables, on the other hand, primarily deal with demographic factors such as gender and socioeconomic contexts. The analysis involves categorizing the content as gain-framed or loss-framed according to the analytical convention. This current study on the COVID-19 crisis in Thailand followed the descriptive analysis prototype conducted by Beeney et al. (2019) as below.

Beeney et al. (2019) conducted a content analysis of texts of health communication in the field of general medicine, covering four different countries: the United States, Canada, Australia, and New Zealand, zeroing in on counseling patients with various types and stages of diabetes as independent factors. Their study showed that this type of health communication involves providing information, healthcare services, prevention strategies, and behavioral counseling. When patients have early-stage diabetes or exhibit many of the symptoms listed above, healthcare providers need to classify the disease's causes, origins, and symptoms, as well as identify the types of complications that may develop. The study of message-framed effects led to two outcomes, namely, gain, and loss. Texts of 125 randomly selected texts were analyzed. This study found that these countries favor a loss-framed effect unanimously, i.e., spreads if the doctor's advice is ignored, and horrific complications emerge. The loss-framed effect mainly represents approximately 63 %, while 37 % is its gain-framed counterpart. Overall, it can be implied that 1) the loss-framed encourages risk-seeking and calls for medical attention in patients, such as blood sugar level check-up and other examination that type 2 diabetes can commonly trigger. 2) The use

of a loss-framed message could lead patients to feel anxious, panicked, or even dread seeking medical attention. However, the researchers have raised two concerns. Firstly, the loss-framed effect may convey a strong message that could have a detrimental emotional impact on patients. Secondly, public health communications or medical information may lack comprehensiveness, and relevance to the community or the patients, and thus could pose a risk of intertextuality. While piecing together the narrative is important, it is essential to avoid misunderstanding or production of misleading facts.

While Beeney et al.'s study is a significant trailblazer, there is a dearth of research that examines health communication through various traditional or mainstream media channels. Researching how the Thai news media utilizes communication strategies, including linguistic aspects, is not only relevant but also timely. This is especially important in a diachronic study that involves analyzing massive amounts of data over a two-year period. The present study has made an attempt to fill this gap. In doing so, it used the prospect theory in establishing criteria against which to measure types of GAIN and LOSS, which hinged on syntactic theories. This confluence of syntactic-semantic theories can be argued to contribute to the prospect theory. In other words, the prospect theory, as applied hitherto, has not used linguistic criteria to measure GAIN and LOSS. Therefore, the present study broadened the scope of applications of the prospect theory, which may be instrumental in explaining the GAIN and LOSS phenomenon in health communication, and other applied sciences.

Research methods

To create the specialized corpus, 17 mainstream online news and news media resources, with a balanced mix of news sources were used. The articles, between March 1, 2020 and December 31, 2021, totaled 1,414,697 words (1.4 million words). The content was all referred to CCSA of Thailand and other current issues related to COVID-19. The analysis consisted of studying linguistic patterns and their frequencies in the corpus. This corpus-driven analysis, unlike the corpus-based counterpart, was employed to obtain empirical facts provided by the corpus itself—the so-called bottom-up approach (Rayson, 2008).

Next, the researchers exported text files of news content from the VOYANT tools (Sampsel, 1018), an online corpus construction website, in order to search for keywords. After obtaining the text file (.txt) data, the researchers followed the protocol of corpus linguistics and employed the KWIC (keyword in context) method for data processing. Only the keyword "โควิด" was used as the search term for retrieving concordance lines, while other variants were disregarded. For subsequent analysis, the concordance line containing the keyword required at least 3-5 sentences of co-texts from the left and the right, or within one paragraph, depending on the coherence and cohesion of the content.

The corpus data was randomized and systematically selected, with KWIC used to first identify samples reflecting the data population accounting for 1.4 million words. The reliability and validity of the content were ensured by two inter-raters. The third interrater was invited when incongruences in data assessment emerged. Less than 2 percent of the inconsistencies were identified. In fact, in translating from Thai into English, close attention to the tone of voice and senses of meaning in the Thai version was given to the English translation. That is, both the Thai and English versions were compared and contrasted so as to detect any translation irregularities.

In terms of linguistic criteria, grammatical and semantic criteria were used to determine whether a text exhibited a framing effect attribute. The qualifying Thai sentences and clauses must conform to specific requirements. The grammatical formula of Iwasaki and Ingkaphirom (2005) and Iwasaki (1989) on Thai causative and benefactive constructions was employed. Additionally, Prasithrathsint's (2010) work on Lexical Dependency Grammar was utilized. Other semantic and supplementary criteria were considered based on the following criteria.

A simple sentence can take on two main types of constructions.

The causative construction is a sentence that has an actioner/subject/agent who causes or influences someone or something using verbs like "cause" "เป็นเหตุให้/ ก่อให้เกิด", "get" "ได้/ ยังผลให้", "have" "ได้", "make "ทำให้", "help" "ช่วย", or "let" "อนุญาต/ ปล่อย/ให้" for various purposes. In this type of construction, the agent or causer must perform an activity and play a prominent role, as in the example sentence "His mother made him wash his car." This implies that "His mother causes the object him to perform the action of washing his own car."

The benefactive construction is a sentence that emphasizes the action that benefits someone or something clearly (patient/benefactor/recipient/effect). This is achieved by using words like "for", "สำหรับ" "to", "ถึง/ แก่/ แด่" "give", "ให้" and "to" "ต่อ". For example, "My mother made me a cake." This sentence implies that "My mother made a cake for me in order to benefit me as the subject." The clause "emphasizing the outcome (a direct object) of an event that benefits the recipient (an indirect object)" can also be used. Below, examples of the causative construction and the benefactive construction are shown accordingly.

(1) แดงให้นกซื้อหนังสือ
dɛɛŋ hây nók sɯ́ɯ naŋsɯ̌ɯ
dɛɛŋ give nók buy a book
Dang askes Nok to buy a book.

"nók buys books" is the "result". The causer is "dɛɛŋ", causing the cause that "nók" has to do something for "dɛɛŋ" in the causative construction (Iwasaki, 1998, p. 203).

(2) นกให้หนังสือแก่แดง
nók hây naŋsɯ̌ɯ kɛ̀ɛ dɛɛŋ
nók give a book to dɛɛŋ
Nok gives a book to Dang.

"nók gives a book" is the main event that causes "nók" as the subject, has the preposition unit "kɛ̀ɛ" or "to", and the beneficiary is "dɛɛŋ" in the benefactive construction (Iwasaki, 1998, p. 203).

The structure involved could be a compound sentence, a complex sentence or an entire discourse.

There may be a verb phrase informing the "cause" and the "effect" separately. The cause and the effect component should be complete in a sense. They may be interchangeable in terms of positions. The cause or the effect components may be other types of subordinate clauses, such as an adjectival clause. The most crucial component is the effect/result concept in these sentences; otherwise, such a sentence cannot be regarded as a message-framing effect. According to Iwasaki (1989), causative keywords in Thai comprise many words, namely, "ทำ" /tham/ make; "ให้" /hây/ give; "ทำให้" thamhây/ lead to; "เกิด" /kɛ̀ɛt/ cause; "นำไปสู่" /nampaysùu/ bring about; "ยังผลให้" /yaŋphǒn hây/ lead to; "ก่อให้เกิด" /kɔ̀ɔhâykɛ̀ɛt/ contribute to. Other set include benefactive construction makers (Iwasaki, 1989), namely "เพื่อ" /phɯ̂a/ for "ให้" /hây/ to "แก่" /kɛ̀ɛ/ for or to accompanied by the set of cause-conjunctions effect makers (Iwasaki & Inkapirom, 2005), such as "เพราะฉะนั้น" /phrɔ́ chànán/ so; "จึง" /cɯŋ/ thus; "ดังนั้น" /daŋnán/ therefore; "ด้วยเหตุที่ว่า" /dûayhèetthîi wâa/ due to the fact that. The last set encompasses other causative/ resultative makers เช่น "ว่า" /wâa/ that + clause "ก็" /kɔ̂ɔ/ as/ that + clause.

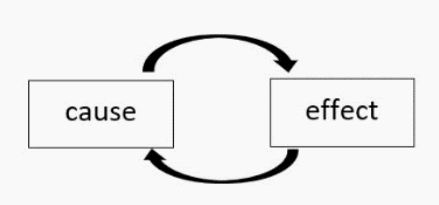
It is important to note that Thai keywords indicating causation, benefit, or result are determined by their functional representation within the proper context and co-text. These stand-alone Thai keywords have multiple functions that vary in usage across different sentences and contexts. For example, "ว่า" /wâa/ can be a verb indicating a statement, introducing direct speech,

serving as a quotative or complementizer in an adjective clause, or functioning as a conjunction to report a reason or explanation as a resultative marker, among other uses.

The content of the sentence, whether it is a single sentence, a compound sentence, a complex, or at a causal level, must focus on the outcome of the action.

Figure 1

Alternation of the cause and the effect sentences for message-framed effect analysis



The cause or action serves as the basic criterion to determine whether the data should be considered as having a framing effect or not. It could pertain to the behavior or actions of public sectors or agencies that lead to positive or negative outcomes. The effect or result represents the outcome of such action or causality. This component is the most crucial in determining whether a sentence qualifies as a message-framed effect or not. At the clausal, sentential, or discourse levels, the positioning of the cause and effect may be interchangeable, as illustrated in Figure 1.

The data used for the analysis of message-framed effects are enclosed within square brackets. At the clausal or sentential level, each example presents the cause and effect that can be considered as message-framed effects. Examples (3) and (4) represent gain-framed messages, while examples (5) and (6) represent loss-framed messages.

> (3) "Recently, cases have been discovered among patients who have traveled internationally. *****[Therefore, it is crucial to return people to their normal lives as soon as possible while balancing the economy and public health by reducing the risk of COVID-19.] *[To achieve this, the following four essential measures should be taken: (1) prevention by wearing masks, washing hands, and avoiding socializing; (2) detection of outbreak indicators to manage and control the spread of the virus properly; (3) access to medical treatment and care; and (4) effective communication of the public.]"*** <Text no. 8092>
> (4) "These individuals must be encouraged to carry out their duties. Of course, COVID-19 probably won't go away, it more or less depends on how we prevent it**. *[If we are properly protected], **[The number of infections will decrease]** but it will not go away anyway. It is necessary to move forward, unable to stop. Therefore, continuing to work is the best protection." <Text no. 5973>

It should be noted that sentences or clauses preceded by a single asterisk indicate causes, whereas two asterisks show results. In addition, as seen in the excerpts above, sometimes clauses indicating results may precede those indicating causes and vice versa.

> (5) "You see. You have no way of recovering the economy as long as the people in the country are still at risk of contracting COVID-19. ****[And if you think that tourism is the main income of the country, but people in the country are still at risk of getting COVID], **[who will visit your country?]*** " <Text no. 559>
> (6) "... Dr. Thanarak mentioned the idea of opening the country for tourism and that the Ministry of Public Health has a policy to safely support opening the country. Currently, the selling point of Thailand is that many countries want to enter. Because there is no outbreak of COVID-19, so * ***[if not taking care of traveling to the country as well as it should], [the outbreak may occur] **[and after that, the idea of opening the country for tourism would have to be folded because of the pandemic]***. Very few people are interested in it." <Text no. 1251>

The sentences or clauses preceded by a single asterisk indicate causes, whereas two asterisks show results. In addition, as seen in excerpts five and six, causes come before results.

Findings

The findings of the diachronic study of the distribution of information, trends in the use of linguistic strategies in accordance with the message-framed effect over a period of 22 months. Based on the analysis of the Thai mainstream media content between March 1, 2020 and December 31, 2021, it was found that the data accounts for 1,414,697 words (1.4 million words) under the message framed effect analysis.

In the initial stage of data analysis, the purpose was to sort out which sentences could conform to the prospect theory criteria. It was found that there were 15,783 unique words (sentences) containing the word "โควิด" functioning as KWIC. However, when scrutinized through concordance lines, only 1,922 sentences met the criteria, accounting for 12.17% of the whole corpus.

As regards data distribution, although attempts were made to obtain equally distributed data per month, in actuality the researcher had to make do with whatever data could be collected in each month, which means monthly data were not equally dispersed. However, the data were subject to percentage analysis, helping to streamline the overall picture of the data collected. The result is shown below.

Table 1

Distribution of Thai mainstream media content over 22 months of the message-framed effect (n = 1,922)

No.	Publishers/ News Agency	Month	GAIN	LOSS	Total	GAIN%	LOSS%
1	Komchadluek	Mar-20	73	27	100	73	27
2	The standard	Apr-20	70	30	100	70	30
3	Khaosod online	May-20	85	54	100	61.151	38.834
4	Khaosod	Jun-20	27	37*	64	42.19	57.81
5	Khaosod online	Jul-20	4	1	100	80	20
6	Khaosod online	Aug-20	15	37*	52	28.846	71.153
7	Matichon online	Sep-20	57	43	100	57	43
8	Matichon online	Oct-20	78	102*	180	43.33333	56.66667
9	Matichon online	Nov-20	25	15	40	62.5	37.5
10	Matichon online	Dec-20	52	47	99	52.525	47.4747
11	Matichon	Jan-21	58	44	102	56.86275	43.13725
12	Matichon	Feb-21	58	18	76	76.31579	23.68421
13	Matichon online	Mar-21	33	20	53	62.26415	37.73585
14	Khaosod online	Apr-21	18	10	28	64.28571	35.71429
15	Matichon online	May-21	76	19	95	80	20
16	Matichon online	Jun-21	60	57	117	51.28205	48.71795
17	Khaosod online	Jul-21	122	23	145	84.13793	15.86207
18	Khaosod online	Aug-21	70	24	94	74.46809	25.53191
19	Khaosod	Sep-21	5	8*	13	38.46154	61.53846
20	Khaosod	Oct-21	46	54*	100	46	54
21	Matichon online	Nov-21	73	10	83	87.95181	12.04819
22	The standard	Dec-21	58	23	81	71.6049	28.391

Note: Asterisk (*) marked on the data represents the loss score is greater than its gain counterpart.

Figure 2

A graph reveals the distribution of Thai mainstream media content over 22 months of the message-framed effect (n = 1,922)

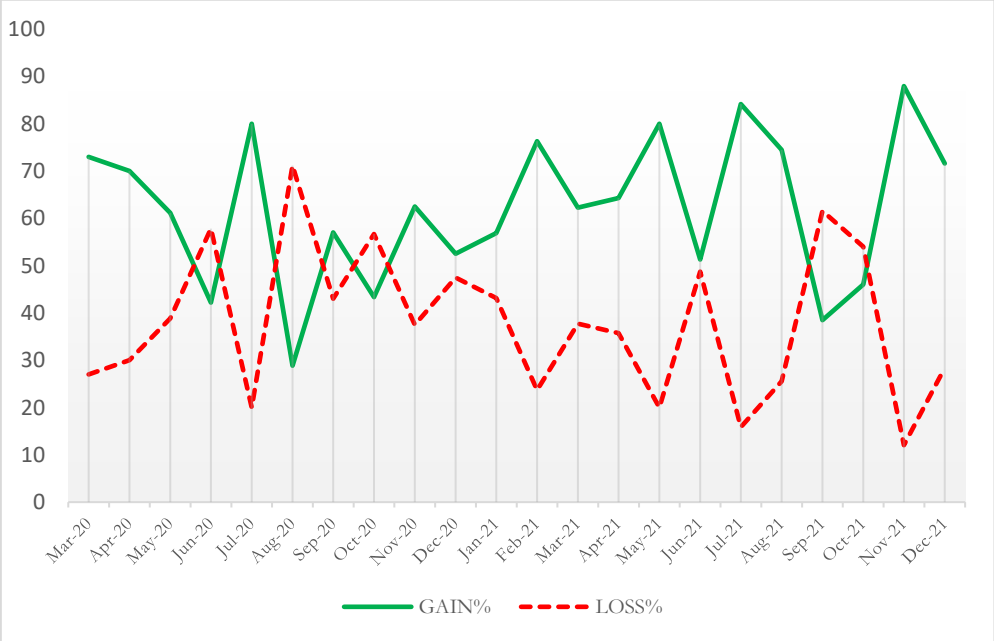


Table 1 and Figures 2 and 3 present the distribution outcomes of the message-framed effect for each month, based on an average of approximately 100 tokens representing the data for each month. These were subsequently converted to percentages (%). The gain-framed impact was found to be more prevalent, with an average score of 62.13%, while the loss-framed mean score accounted for 37.9% throughout the 22-month period. The gain-framed effect was shown to be statistically significantly different from its counterpart, as confirmed by the t-test: two-sample assuming unequal variances (p-value < 0.00001). Notably, the gain-framed effect was particularly pronounced in July 2020, July 2021, and November 2021, which saw the highest gain-framed messages. It should be noted that gains and losses were both used at different rates in each month, depending on the circumstances and COVID-19 wave's strength.

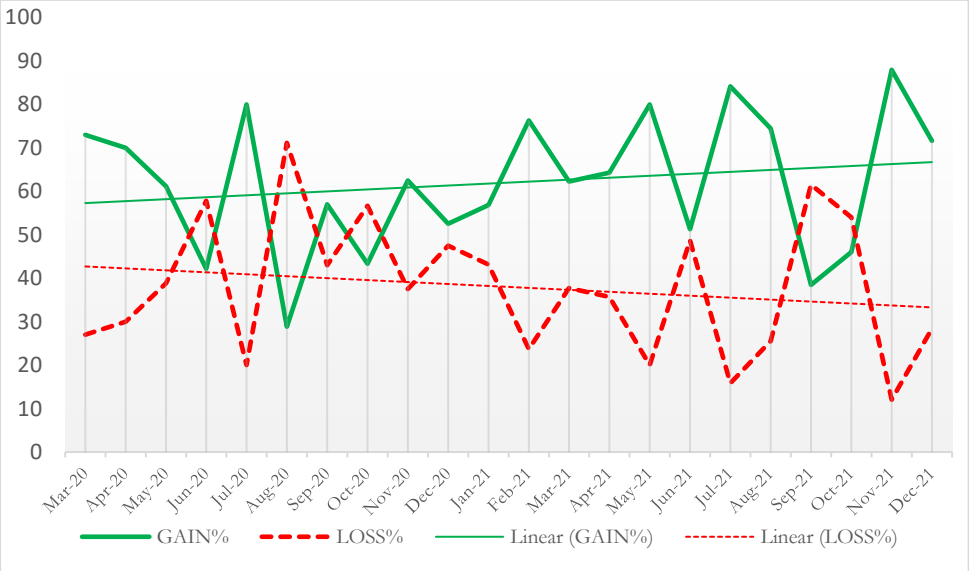
Gain-framed messaging strategies can be interpreted as soft and polite communication between the media and health authorities, focusing on prudence, prevention, and risk aversion. Despite periods of government easing, waves of COVID-19 have spread more than four times in a three-year cycle. When an authority uses gain-framed messaging, it communicates to the public that people should not be reckless and should be cautiously alert to the threat of infection. This includes actions such as avoiding touching one's face, wearing a mask, maintaining physical and social distancing, taking various types of medication, and avoiding crowded areas with poor ventilation. Additionally, health authorities encourage vaccination as much as possible. Finally, for those who have already been infected, several measures with varying levels of severity (such as severe, medium, and mild) have been implemented throughout the two-year period.

Although there were more loss-framed messages than gain-framed messages for five months (June 2020, August 2020, October 2020, September 2021, and October 2021), the trend in the data over the previous two years was primarily gain-framed. The use of the loss frame had little impact on the overall data (22 months), while the majority is the gain-framed messaging taking 17 months. Additionally, there was not considerable raw data for those 5 months where the loss frame was employed. For example, September 2021 only had 5 gains and 8 losses, while August 2020 only had 15 gains and 37 losses. These two months were almost outliers. Therefore, the overall diachronic alteration of the data over COVID-19's two-year timeframe would be minimally affected by the use of loss-framed messaging.

Furthermore, it should be noted that the loss frame may have been the starting point for the linguistic strategy in prospect theory that appeared in the data during the onset stages of the COVID-19 pandemic. However, a third wave later appeared in September and October of 2021, suggesting that people may be more aware of the issue. Recurrences of the pandemic resulting from external causes such as neglect and conspiracy can lead to new clusters and waves of outbreaks, which may prompt the use of loss-framed messaging techniques.

Figure 3

The diachronic study revealing the trends of linguistic strategies using message-framed effect strategy over 22 months (n = 1,922)



Referring to Figure 3, the data were analyzed using a linear equation, represented by the upward and downward lines in the two graphs. The analysis revealed that the gain-framed effect gradually increased over a 22-month period, including multiple waves of pandemic recurrences, while its counterpart, the loss-framed message, decreased over the same period.

The results indicate that the use of gain-framed language was much higher in many months, suggesting that the Thai authorities and news agencies, who were responsible for health communication to the public, were increasingly favoring this strategy during the pandemic. It is noteworthy that both gain and loss strategies were employed, but the former was significantly more prevalent than the latter.

Interestingly, the data analysis reveals that media agencies may extensively use the GAIN strategy during each major recurrence, also known as a "wave", of high COVID-19 confirmed cases and fatality rates. The usage of gain-framed messages during these months shows a high correlation with the occurrence of new large waves, specifically in March 2020 (1st wave), June and July 2020 (2nd wave), and April, May, and July 2021 (3rd wave). This suggests that mainstream media and agencies may attempt to alleviate public pressure and mitigate negative views and dissatisfaction during the peak periods of waves. These wave occurrences are consistent with multiple reports and studies (Cna, 2021; Rajatanavin et al., 2021; World Health Organization, 2023). Also, the latest wave (4th wave) reached its peak between May and June 2022 (World Health Organization, 2023). However, the number of new cases and fatalities has significantly decreased since then.

Discussion and conclusion

This research analyzed communication strategies using the prospect theory or message-framed effect in mainstream news media, including mainstream and online newspapers, for health crisis communication regarding COVID-19. The main feature of this analysis was to identify the "cause" or "effect" that appeared in news content. In effect, this research analyzed language strategies and the resulting choices made by online news agencies presenting information about COVID-19 from March 1, 2020, to December 31, 2021, totaling 22 months, according to the CCSA of Thailand's announcement. This COVID-19 corpus in Thai comprised approximately 1.4 million words from several major Thai news agencies. Gain-framed strategies accounted for approximately 63%, while the loss counterpart was around 37%. Consequently, crisis health communication launched by authorities through Thai media elsewhere promoted the gain-framed strategy. This means that authorities and broadcasters focused more on beneficial results and advantages than negative results and disadvantages.

The prevalence of the gain-framed message and its advantages

The mainstream media and news agencies in Thailand have opted for a gain-oriented strategy. The authorities prioritized prevention and protection over searching for treatment or additional information. Thus, favorable outcomes such as surviving quarantine and receiving state protection could be achieved if individuals adhered to public health measures.

The preference for gain-framed effects in Thai media may be attributable to the politeness of Thai culture and the collective control of the populace during a crisis. This indicates that the best strategy is to communicate information with great tact and avoid causing excessive distress. Focusing on making the audience feel good and optimistic, even when reporting on life-and-death issues is highly sensitive. Thai culture is deeply rooted in dealing with a crisis or problem with composure and courtesy. During a crisis, a high level of sympathy, homogeneity, and respect can be observed in the messages conveyed by mainstream and traditional media agencies. The manifestation of the positive aspects based on the media can be seen below.

Be optimistic and confident so as to gain people's trust by showing their commissive acts

> (7) "The patient was infected in Malaysia, and although the source of the illness was not clearly identified, it is suspected that the patient contracted the virus while residing in an outbreak area because the market where the patient works is now closed. The examination results from the authorities did not show any COVID-19 infection in people who had contact with the patient. This information is provided to ensure safety, build confidence, and gain trust from Thais and those who live in the affected areas." <no. 23711>

Example no. (7) illustrates the potential for pandemonium in Thailand if an incoming traveler is infected with COVID-19. In such cases, medical staff have been able to identify the person's travel route and location, and provide proper medical treatment. The health communicator has built confidence and trust with the public by using a gain frame. They employ keywords like "ensure" and "gain trust" to reassure the Thai people and those in the surrounding areas where the infected individual has traveled.

> (8) "This is the operations center of the healthcare service. On June 5, Mr. Anucha Burapachaisri, spokesperson for the Prime Minister's Office, announced that General Prayut Chan-o-cha, the Prime Minister and Minister of Defense, recognizes the importance of supporting Thai scientists in developing their own COVID-19 vaccines. The government has approved 2.8 billion baht to support the in-house research, development, and production of COVID-19 vaccines. This funding is intended to boost Thailand's capacity to deal with the spread of the virus." < no. 1465>

In example no. (8), the tone of the Prime Minister's spokesperson is clearly optimistic, and the use of the gain frame is in evidence. Despite frequent waves of COVID-19 during the period, the number of infected individuals increased to tens of thousands between April 2021 and July 2021. The government at the time made a crucial commitment to investing heavily in treatment research. They aimed to instill positivity in the public by demonstrating their pursuit of innovative solutions and serious commitment to solving the problem. Additionally, while waiting for the vaccine procurement from abroad, they established a research organization to prepare for novel medical treatment, fund new research, and restore confidence in the government's actions.

> (9) "It has been discovered that the symptoms of influenza and the new variant of COVID-19 are very similar. This may generate tremendous anxiety about which disease is causing illnesses. However, it is advised that you should not worry about contracting COVID-19, especially if you do not have access to high-risk areas, only stay at home and follow the usual self-protective measures, such as wearing a mask and washing your hands frequently, there is no risk of infection. There is a slim chance of infection." < no. 20396>

Example no. (9) demonstrates how panic and misunderstanding arose when people mistook the symptoms of influenza for COVID-19, despite medical expertise showing that the symptoms of both diseases are very similar. The administration of the healthcare system used phrases such as "should not worry" to calm people down and encouraged good practices, such as frequently wearing masks and washing hands. The authorities clearly explained the nature of the risks and the conditions contributing to infection. Therefore, there is no need for alarm if the patient is not involved in the risk zone. The tone is upbeat and sympathetic, without pressuring the recipients.

Show sympathy to convey a sense of homogenous solidarity politely

> (10) "I would like to encourage everyone to continue performing their duties despite the ongoing pandemic crisis. I understand that everyone is tired and struggling, but it's important to stay motivated and support each other. Although COVID-19 may not disappear completely, it's crucial to take preventive measures to reduce the infection rate. By doing so, we can slow down the spread of the virus. However, we must keep moving forward and cannot stop working. It's the best defense we have against the pandemic." <no. 1288>

In example (10), it is clear that the authorities in the healthcare administration used terms such as "encourage" and "understand" to acknowledge and empathize with those working on COVID-19. However, they still advised everyone to be vigilant and not let their guard down regarding the severity of the pandemic situation by following good medical practices. If people rigorously adhere to the medical measures, they will be safer. The phrase "would like to encourage" appears to show the politeness of the speaker. It is necessary to have support and cooperation from all parties, public sectors, and organizations. This demonstrates a culture of support and generosity in Thai culture and society in general.

Moreover, the speaker used the war metaphor (Lakoff & Johnson, 1980) with COVID-19 being the main antagonist, and the city representing governments and citizens. They must work together to build a strengthened fortress by taking medical precautions seriously to prevent the enemy (COVID-19) from invading. Finally, everyone must make concerted efforts, fostering a sense of solidarity.

> (11) "The Bank of Thailand (BOT) has reported that it has consistently issued measures to assist impacted creditors since the beginning of 2020. The third phase of retail debtor relief measures was recently provided to alleviate the impact of the COVID-19 outbreak, which substantially decreased the debtor's income and debt repayment capacity. In addition, the public has responded favorably to the credit card and online personal loan mediation fairs." < no. 2482>

In example (11), the government agency is the Bank of Thailand, and it has made numerous efforts to alleviate financial difficulties faced by entrepreneurs who are unable to pay and with other related financial matters during the crisis. The speaker expressed profound sympathy and understanding for the people and provided concrete aid through various financial measures by using the gentle message tone.

It should be noted that positive health communication methods by mainstream media in Thailand are, in some respects, consistent with research from the UK's National Health Service (NHS) in England. In line with the study by Adolphs et al. (2023), the current study implies that effective crisis health communication and panic reduction should embrace the following measures to successfully convey the information: 1) Work together and become involved in a particular community; 2) Information should be informative, inclusive, and diverse; 3) Being honest with the public; 4) Empathy & understanding of societal values; and 5) Being a service that is accessible and realistic. Furthermore, certain keyword features have been identified and therefore should be used during health communication during a crisis. For instance, 1) Information is easy to understand; 2) Concise information; 3) Reliable and trustworthy; 4) Timely and suitable for the situation; 5) Complete and Informative; 6) Recognizable Information; 7) This information can be realistically attainable; 8) Accurate information; 9) The information is eye-catching; and 10) Information has an encouraging and empathetic tone.

In the light of the above characteristics, crisis communication that presents too much life-and-death information can cause panic and lead to error-prone choices. Therefore, Thailand's authorities and media may choose a gentle communication strategy that emphasizes benefits, sympathy, and positivity to help alleviate trauma and stress during this prolonged period. This type of communication, particularly using a gain-framed effect to highlight the positive, can foster goodwill towards the sender and encourage compliance with government directives.

The roles of the linguistic strategy in crisis communication vis-a-vis the national health service and system in Thailand

The excellent control and prevention of the COVID-19 pandemic in Thailand is facilitated by the country's outstanding effectiveness and expeditious access to public health services. The efficacy of Thai public health has been praised around the world (The Nation Thailand, 2022). The effectiveness of COVID protection and treatment in Thailand's healthcare system is arguably the most significant factor in measuring the success of reducing the patient and death toll rates.

Aggregating ratings for each category provide a country's Global Health Index (GHI) score, which ranks nations based on their health (Healthiest-countries 2023, 2023). According to the GHI, Thailand ranks fifth globally, with the top four including the USA, Australia, Finland, and Canada. GHI criteria include biosecurity, biosafety, the epidemiology workforce, and medical personnel communication and so forth. During the pandemic, Thailand's media has played a pivotal role in promoting health efficiency through the utilization of various linguistic strategies, channels, and modes of communication. This, in combination with the gold standard of Thai medication accessibility and the robust health security system, has made a significant contribution to the overall efforts during crisis.

How to cope with the public outcry and social pressure

According to Beeney et al. (2019), inadequate dissemination of public health information may have a detrimental impact on the target audience. They noted that a proper balance must be struck when it comes to disseminating messages concerning crises. That is, the circulation of adequate and informative information may induce public anxiety and disorder. On the contrary, withholding information by any authorities concerned is not conducive to public awareness of the crises. In this given crisis, presenting a loss-framed linguistic strategy and providing sufficient information may cause people to become risk-takers. This might be worrisome. Furthermore,

although the loss-framed strategy technically leads to improved practice and change, it may have profoundly negative effects on the public's attitude and mood, such as stress, fear, anxiety, regret, and widespread despair and depression. Therefore, it is crucial to find the right balance between providing sufficient information and avoiding overwhelming the public with too much life-and-death information. If this condition has been considered by the Thai authority, the gain frame might be the right choice to tackle with the public uproar from the health crisis.

Acknowledgements

This research has received funding support from the NSRF via the Program Management Unit for Human Resources & Institutional Development, Research and Innovation [grant number B17F640195]. We would like to thank Naruadol Chancharu from the University of Cambridge, UK, for inspiring this research topic and Saksit Saengboon for his valuable comments.

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