A Comparative Study of News Tweets of Tham Luang Cave Rescue by Thai, American, British, and Australian Broadcasters

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Abstract

This research investigated the typical grammatical structures, topics, and address terms for the victims in the news of Tham Luang cave rescue on Twitter published by four broadcasters: Bangkok Post, CNN International, BBC World News, and ABC News. The sample was 454 news tweets posted by the broadcasters between June 25, 2018 and July 15, 2018. The instruments were a syntactic analysis table, a topic analysis table, and an address term analysis table. The results showed that (1) the most typical grammatical structure used in the news by all broadcasters, except BBC World News, was simple sentence, (2) the most frequently-addressed topics in Bangkok Post and BBC World News were settings, while those in CNN International and ABC News were victims, and (3) the most frequently-used address terms for the victims in the news by Bangkok Post and BBC World News were address terms associated with age and gender combination and those associated with occupation, while this frequency order was in reverse in the news by CNN International and ABC News. Certain statistically significant correlations were also witnessed. The findings provided insights into certain similarities and differences in typical grammatical structures, topics, and address terms in the news tweets posted by the four broadcasters, and they also reflected English-language news publication on Twitter in general.

Keywords: address term, grammatical structure, news, topic, Twitter

1. Introduction

1.1 Rationale

Twitter, which was founded and launched in 2006, is currently one of the world's most popular social networks. In 2020, the number of active users on Twitter was 353 million, which accounted for around 10% of the number of social network users worldwide ("Most Popular Social Networks," n.d.). In the same year, Twitter was most actively used in the United States, Japan, India, Brazil, and the United Kingdom ("Leading Countries Based on Number," n.d.). Through its website interface and its mobile application, Twitter allows users to post and interact with short messages known as "tweets," along with images, GIFs, audios, videos, and URLs ("Twitter," n.d.). As of May 2020, around 500 million tweets were sent per day (Sayce, n.d.).

Twitter is not only commonly used by users to send and receive short messages, but it is also widely used by journalists, news reporters, and news broadcasters to provide audience with additional channels to receive latest news updates both locally and internationally (Bremmen, 2010). Unlike the traditional broadcast media such as television, radio, and print newspapers, Twitter provides news broadcasters with a quicker method for accessing first-person accounts of news and reporting the news to the audience (Oswald, n.d.). In addition to updating their audience on recent news, broadcasters are able to take unparalleled opportunities to fully engage with their audience by directly replying to them, retweeting their tweets, and answering their questions, thereby likely increasing their followers (Hollett, n.d.).

Among other social media channels, Twitter is used as an additional medium of communicating and accessing emergency situations worldwide (Saroj & Pal, 2020). In 2018, it was extensively used by many news broadcasters to report breaking news about the Tham Luang cave rescue in Thailand. From June 23, 2018 through July 10, 2018, the rescue operation was carried out to save twelve members of the Wild Boars junior high school football team and their assistant coach from being trapped in Tham Luang cave in Thailand's Chiang Rai province due to the blockage of heavy rains ("Tham Luang cave rescue," n.d.). The rescue involved a

number of national rescue workers, police officers, soldiers, and government officials in close collaboration with international experts and rescue teams (Suksamran, 2019). The life-saving operation received global attention and audience as it was reported not only by national but also international top news broadcasters, including Thailand's Bangkok Post, the United States' CNN International, the United Kingdom's BBC World News, and Australia's ABC News.

As the news of Tham Luang cave rescue was widely reported on Twitter by news broadcasters from various countries, it was worth investigating whether the news tweets posted by news broadcasters from Thailand, the United States, the United Kingdom, and Australia, were similar or different in terms of the language use and the content being reported on Twitter. Therefore, this study aimed at investigating (1) the most typical grammatical structures in the news of Tham Luang cave rescue on Twitter published by Bangkok Post, CNN International, BBC World News, and ABC News, (2) the most typical topics in the news on Twitter published by these news broadcasters, and (3) the most typical address terms for the victims in the news on Twitter published by these news broadcasters.

As the news was posted with character limit in tweets, and the news involved a wide range and variety of individuals, a comparative analysis of news tweets of Tham Luang cave rescue may provide insights into certain similarities and differences in typical grammatical structures, topics, and address terms for the victims in the news on Twitter published by Thai, American, British, and Australian news broadcasters as well as reflect English-language news publication on Twitter by news broadcasters in general.

1.2 Theories and Related Literature

Grammatical structures, topics, and address terms are crucial for news analysis.

1.2.1 Grammatical Structure

Grammatical structure refers to the grammatical arrangement of words, phrases, and clauses in a sentence. According to Oshima and Hogue (2014, pp. 164-178), sentence is classified into four major types: simple sentence, compound sentence, complex sentence, and compound-complex sentence, and they illustrate each type as follows.

A simple sentence is one independent clause (e.g., "English grammar is easy"). A compound sentence is two or more independent clauses combined by a coordinator, a conjunctive adverb, or a semicolon (e.g., "Grammar is easy, so I learned it quickly"). A complex sentence is one independent clause and one or more dependent clauses (e.g., "I learned grammar quickly because it is easy"). A compound-complex sentence has two independent clauses and one or more dependent clauses (e.g., "Because grammar is easy, I learned it quickly, but it took me several years to master writing").

Clause is classified into two major types: independent clause and dependent clause, which is further classified into three sub-types, i.e., noun clause, adjective clause, and adverb clause (Oshima & Hogue, 2014, pp. 172-173). Phrase is classified into noun phrase, verb phrase, adjective phrase, adverb phrase, and prepositional phrase (Aarts & Haegeman, 2006, pp. 124-133).

Previous studies investigated English language use and other dominant features used in tweets. According to Gonzales (n.d.), Twitter's character limit partly influences its users' grammar, including grammatical structures, in their tweets. In her study of 287 tweets from various Twitter user groups, she found linguistic errors in all groups examined, with the "Uneducated Celebrities" group committing the greatest number of errors, while the "Politics" group committing the least number of errors. The most frequent errors were fragmentation and incorrect punctuation, and the least one was the use of incorrect count nouns.

Kaewkamjan et al. (2020) examined English language style of CNN breaking news on Twitter, including diction, syntax, and purposes of the authors. Analyzing 150 pieces of CNN breaking news, they found that the tweets were written in an informal register, such as using informal words entirely and using non-specialized words frequently. The tweets were written most frequently in complex sentence followed by simple sentence. Almost all the sentences were written in the active voice. The authors' purposes were mainly to inform audience of particular facts, such as a new policy, operation, and emergency.

Similarly, Denby (n.d.) studied linguistic features in tweets posted by Twitter users in general. Analyzing 430 tweets with their 140-character limit, he found some common linguistic features. To be specific, the average tweets were 1.54 sentences, 13.79 words, and 65.21 characters in length. The contractions accounted for 62.9% of all potential opportunities for contractions. There were several instances of pro-dropping, whereby the first-person pronoun I and the subsequent auxiliary verb were omitted when they were pragmatically or grammatical referable, such as in "Watching a Billy Mays infomercial" instead of "I am watching a Billy Mays

infomercial" (Denby, n.d., p. 23). Other prominent features in tweets included providing hyperlinks to other websites and using hashtags to link to specific topics (Denby, n.d., p. 23).

As Twitter typically requires its users to tweet a message that is succinct and to the point, this study analyzed the grammatical structures of news tweets of Tham Luang cave rescue, which in turn, would likely reveal typical grammatical structures of news tweets in general and those used by four different broadcasters in particular.

1.2.2 Topic

Topic refers to "a subject that is discussed, written about, or studied" (Cambridge Dictionary, n.d.). Zhao et al. (2011) classified topic into three major types: event-oriented topics, entity-oriented topics, and long-standing topics. Event-oriented topics include news events such as "Tham Luang mission." Entity-oriented topics include individual persons, things, or places such as "Coach Ekkapol Chantawong," "FIFA," and "Tham Luang cave." Lastly, long-standing topics include long-standing subjects such as "global warming." Comparing the distribution of different topic types in Twitter and a traditional news medium, i.e., New York Times, Zhao et al. (2011) found that Twitter had larger number of tweets and users discussing entity-oriented topics than the traditional news medium. However, event-oriented topics were barely discussed on Twitter.

In the study of Tham Luang cave rescue news in three national English-language newspapers in Thailand, Chanthapan, Davis, Numdokmai, and Sutabutra (2018), using a framing analysis, found five most dominant frames: Search and Rescue, International Support, Moral Support, Survival of the Wild Boars, and Family and Friends. As the news events involved a wide range of people such as national and international rescue teams and experts, the news articles were largely derived from multiple sources of information, including Thai government officials, foreign government officials, rescue workers, family members, and classmates.

In the investigation of Twitter users' attitudes toward Tham Luang cave rescue news, Laosrirattanachai and Panyametheekul (2019) analyzed language used in the comments on this news event from BBC and CNN official accounts on Twitter. The analysis of 16,621-word corpus revealed that the topics that Twitter users mentioned most frequently was "the boys," followed by "rescue" and "cave." The findings indicated that Twitter users were concerned about the boys, i.e., the victims, and pray for them in that unfortunate incident. Also, Twitter users were frequently concerned about the process of rescuing the boys and discussed the cave in various issues, such as general information about the cave and experience of entering the cave. During crisis events, people in general are interested to know the location of the event, and they could find the location information of the event on social media channels, such as Twitter (Saroj & Pal, 2020).

As the news of Tham Luang cave rescue frequently reported the laborious rescue attempt to save the victims from being trapped in the cave, this study investigated entity-oriented topics in the news, namely victims, rescuers, supports, and settings, which would reveal the extent to which the same topics were discussed by different news broadcasters. The topics will be further detailed in the Method section.

1.2.3 Address Term

Address terms, also known as terms of address or forms of address, refer to any word, phrase, name, or title used to address another person in speech or in writing. According to Johnstone (2008, p. 140), address terms can indicate social identities and discourse roles between interlocutors. In reciprocal situations, first name or a title and last name combination can be used to address another person. In non-reciprocal situations, on the other hand, a wider variety of address terms can be used: first name, nickname, short form of first name, title and last name combination, title only, last name only, or even no address terms. Also, social identities are often associated with race, gender, ethnicity, and nationality (Johnstone, 2008, p. 151).

In addition to indicating social identities and discourse roles, address terms can also indicate the formality of occasions. Formal address terms, such as Doctor, The Honorable, and His Excellence, are often used to recognize another person's academic or professional accomplishments, while informal address terms, such as honey, dear, you, are often used to show affection (Nordquist, 2019). Address terms may also be friendly (e.g., dude, sweetheart), unfriendly (e.g., You idiot!), neutral (e.g., Jerry), or comradely (e.g., My friends) (Nordquist, 2019).

In an analysis of media content, Armstrong and Gao (2010) suggest considering who the content is addressed to. The present research examined the news broadcasters who reported the news incident of Tham Luang cave rescue to Twitter users or audience in general. Consequently, the analysis of address terms in the news focused solely on the address terms for the victims, i.e., the twelve members of the Wild Boars football team and their assistant coach who were trapped in the cave. The analysis would disclose how the victims of the same incident were addressed by different broadcasters from different countries.

1.3 Research Objectives

This study aimed to investigate typical grammatical structures in the news of Tham Luang cave rescue on Twitter published by Bangkok Post, CNN International, BBC World News, and ABC News, typical topics in the news of Tham Luang cave rescue on Twitter published by these four broadcasters, and typical address terms for the victims in the news of Tham Luang cave rescue on Twitter published by the four broadcasters. Statistically significant correlations between the uses of grammatical structures, topics, and address terms for the victims by these broadcasters were also explored.

2. Method

2.1 Sample

The sample was 454 pieces of news of Tham Luang cave rescue on Twitter published by Bangkok Post (202 pieces), CNN International (84 pieces), BBC World News (80 pieces), and ABC News (88 pieces), from June 25, 2018 to July 15, 2018. The sample was purposively obtained during this period because the news of the cave rescue was widely publicized throughout the media investigated due to the fact that the rescue was carried out around this period, namely between June 23, 2018 and July 10, 2018 ("Tham Luang cave rescue," n.d.).

2.2 Instrument

In order to achieve the research objectives, three instruments were devised to collect and analyze the data. The first was a syntactic analysis table, which primarily recorded the news tweets of Tham Luang cave rescue posted by the four broadcasters, plus the URL of the tweets, for the analysis of grammatical structures used in the news. The second instrument was a topic analysis table specifically designed to analyze the major topics, i.e., victims, rescuers, supports, and settings, which recurred in the news published by all the broadcasters. The last research instrument was an address term table, which was employed to record all the address terms for the victims in the news published by all the broadcasters, for the analysis of address terms for the victims in the news.

2.3 Data Collection

The data were collected from the news tweets posted daily by all the broadcasters, namely Bangkok Post (@BangkokPostNews), CNN International (@cnni), BBC News (World) (@BBCWorld), and ABC News (@abcnews), over a three-week period between June 25, 2018 and July 15, 2018. The data, plus their URL, were recorded verbatim in the syntactic analysis table for further analysis.

2.4 Data Analysis

In order to analyze the data and achieve the research objectives, the data analysis was carried out as follows. For a syntactic analysis, Oshima and Hogue's (2014) framework was employed to identify the grammatical structure of each piece of news and then classify the grammatical structure according to type, e.g., simple sentence, noun clause, and noun phrase. For a content analysis, Zhao et al.'s (2011) framework was applied to identify the entity-oriented topics occurring in the news tweets and further divide them into four major groups, i.e., victims, rescuers, supports, and settings. The rest were classified into the "other" group.

The victims in this study included the twelve members of the Wild Boars football team and their assistant coach who were trapped in Tham Luang cave. The rescuers included rescue individuals and teams such as rescue divers, police officers, and soldiers. The supports included supporters who were not directly involved in the actual rescue but supported the rescuers in their operation, such as prime minister and laundry workers. Settings included places in which the rescue was carried out such as Tham Luang cave, Mae Sai district, and Chiang Rai province. Lastly, "other" group refers to people or places other than the above-mentioned such as the victims' families, monks, and filmmakers.

Additionally, for an analysis of address terms for the victims in the news, adopting Johnstone's (2008) framework, was carried out to identify all the address terms for the victims and classify them according to type, e.g., address terms associated with age, gender, occupation, first name plus last name, and title plus nickname.

Furthermore, descriptive statistics, i.e., frequency and percentage, and Spearman Rho Correlation were utilized to describe and present the research results in tables.

3. Results

Three types of results are presented below: grammatical structures, topics, and address terms.

3.1 Grammatical Structures in the News on Twitter

The analysis of grammatical structures in the news of Tham Luang cave rescue on Twitter published by Bangkok Post, CNN International, BBC World News, and ABC News revealed ten grammatical structures as shown in Table 1.

Overall, the typical grammatical structures used in the news tweets posted by all the broadcasters were simple sentence (42.39%), noun phrase (32.81%), complex sentence (16.95%), and others (7.85%).

To be more specific, simple sentence was the most frequently used grammatical structure in the news published by all the broadcasters except BBC World News. In other words, BBC World News most frequently used noun phrase (45.52%), followed by simple sentence (38.81%).

CNN International and ABC News, on the other hand, had similar frequency order in using grammatical structure. In other words, the most frequent grammatical structure in CNN International and ABC News were simple sentence, complex sentence, and noun phrase.

Table 1. Frequency and Percentage of Grammatical Structures Found in the News on Twitter of Four Broadcasters

Grammatical Structures	Bangkok Post		CNN		BBC		ABC	
	No.	%	No.	%	No.	%	No.	%
Simple S.	106	43.44	57	44.19	52	38.81	55	42.31
Compound S.	5	2.05	7	5.43	2	1.49	6	4.62
Complex S.	24	9.84	38	29.46	15	11.19	31	23.85
Compound-Complex S.	1	0.41	1	0.78	1	0.75	2	1.54
Noun Clause	0	0	1	0.78	0	0	0	0
Noun Phrase	104	42.62	14	10.85	61	45.52	30	23.08
Verb Phrase	0	0	0	0	2	1.49	0	0
Adjective Phrase	3	1.23	8	6.20	0	0	5	3.85
Adverb Phrase	1	0.41	2	1.55	0	0	0	0
Prepositional Phrase	0	0	1	0.78	1	0.75	1	0.77
Total	244	100	129	100	134	100	130	100

According to the results in Table 1 above, simple sentences appear to be the most preferred to be used in Twitter news, as seen in the first rank of Bangkok Post, CNN, and ABC and in the second rank of BBC. In addition, noun phrases tend to be used in the second rank, as in Bangkok Post except between BBC and CNN, in the third rank of ABC, and even the first rank of BBC. Other grammatical structures are rarely used, particularly noun clauses and verb phrases.

The following are examples of simple sentence, complex sentence, and noun phrase used in the news tweets investigated.

Simple Sentence:

Thai boys 'could be in cave for months' (BBC News (World), 2018, July 2).

Noun Phrase:

Tham Luang this morning after #ThaiCaveRescue (Bangkok Post, 2018, July 10).

Complex Sentence:

A group of ambulances have left the Tham Luang cave complex after rescue teams freed the first of the trapped boys. (ABC News, 2018, July 8).

Table 2. The Spearman Rho Correlation Statistics of Grammatical Structures Found in the News on Twitter of Four Broadcasters

		Bangkok Post	CNN	BBC	ABC
Bangkok Post	Correlation Coefficient	1.000	.941**	.680*	.922**
	Sig. (2-tailed)	.	.000	.030	.000
	N	10	10	10	10
CNN	Correlation Coefficient	.941**	1.000	.525	.888**
	Sig. (2-tailed)	.000	.	.119	.001
	N	10	10	10	10
BBC	Correlation Coefficient	.680*	.525	1.000	.731*
	Sig. (2-tailed)	.030	.119	.	.016
	N	10	10	10	10
ABC	Correlation Coefficient	.922**	.888**	.731*	1.000
	Sig. (2-tailed)	.000	.001	.016	.
	N	10	10	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The statistical results in Table 2 show that there is a significant correlation between grammatical structures of the Twitter news published by the four broadcasters, except between BBC and CNN.

3.2 Topics in the News on Twitter

The analysis of topics in the news of Tham Luang cave rescue on Twitter published by the four broadcasters revealed that the major topics: victims, rescuers, supports, and settings, were reported to a varying extent as shown in Table 3.

Table 3. Frequency and Percentage of Topics in the News on Twitter

Topics	Bangkok Post		CNN		BBC		ABC	
	No.	%	No.	%	No.	%	No.	%
Victims	132	28.95	125	46.99	72	38.92	85	41.26
Rescuers	106	23.25	36	13.53	27	14.59	46	22.33
Supports	35	7.68	9	3.38	4	2.16	7	3.40
Settings	157	34.43	85	31.95	75	40.54	53	25.73
Others	26	5.70	11	4.14	7	3.78	15	7.28
Total	456	100	266	100	185	100	206	100

The content analysis shows that the most frequently-addressed topics in Bangkok Post and in BBC World News were settings, e.g., Tham Luang cave, Mae Sai, Chiang Rai, and Thailand, all of which accounted for 34.43% and 40.54% respectively. On the other hand, the most frequently-addressed topics in CNN International and in ABC News were victims, i.e., twelve members of the Wild Boars football team and their assistant coach, all of which made up 46.99% and 41.26% respectively.

Generally, Bangkok Post and BBC World News had similar order of recurring topics from most to least frequent as follows: settings, victims, rescuers, and supports. On the other hand, CNN International and ABC News had similar order of recurring topics from most to least frequent as follows: victims, settings, rescuers, and supports.

Table 4. The Spearman Rho Correlation Statistics of Topics in the News on Twitter

		Bangkok Post	CNN	BBC	ABC
Bangkok Post	Correlation Coefficient	1.000	.800	.900*	.800
	Sig. (2-tailed)	.	.104	.037	.104
	N	5	5	5	5
CNN	Correlation Coefficient	.800	1.000	.900*	1.000**
	Sig. (2-tailed)	.104	.	.037	.
	N	5	5	5	5
BBC	Correlation Coefficient	.900*	.900*	1.000	.900*
	Sig. (2-tailed)	.037	.037	.	.037
	N	5	5	5	5
ABC	Correlation Coefficient	.800	1.000**	.900*	1.000
	Sig. (2-tailed)	.104	.	.037	.
	N	5	5	5	5

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 4 show a significant relationship between topic types used by Bangkok Post and BBC, CNN and BBC, and CNN and ABC. That is, the three broadcasters of the English-speaking countries are correlated while the Thai broadcaster is related to merely BBC, the British broadcaster.

3.3 Address Terms for the Victims in the News on Twitter

The analysis of address terms for the victims in the news of Tham Luang cave rescue on Twitter published by the four broadcasters investigated revealed ten address terms associated with various factors as shown in Table 5.

The detailed analysis showed that Bangkok Post and BBC World News were similar in that they most frequently used address terms associated with age and gender combination (i.e., 41.67% and 65.28% respectively) and address terms associated with occupation (i.e., 29.55% and 26.39% respectively).

This frequency order was in reverse in the news published by CNN International and ABC News. In other words, they most frequently used address terms associated with occupation (i.e., 49.60% and 49.41% respectively) and address terms associated with age and gender combination (i.e., 48% and 38.82% respectively).

Table 5. Frequency and Percentage of Address Terms for the Victims in the News on Twitter

Address Terms	Bangkok Post		CNN		BBC		ABC	
	No.	%	No.	%	No.	%	No.	%
Age	6	4.55	1	0.80	2	2.78	2	2.35
Age & Gender	55	41.67	60	48.00	47	65.28	33	38.82
Age, Gender, & Occupation	0	0	1	0.80	0	0	5	5.88
Occupation	39	29.55	62	49.60	19	26.39	42	49.41
Nationality	0	0	0	0	1	1.39	0	0
Numeral or Ordinal Number	17	12.88	0	0	3	4.17	1	1.18
First Name & Last Name	2	1.52	0	0	0	0	0	0
Title & Nickname	3	2.27	0	0	0	0	0	0
Accusative	1	0.76	0	0	0	0	0	0
Neutral	9	6.82	1	0.80	0	0	2	2.35
Total	132	100	125	100	72	100	85	100

The following are examples of five most typical address terms for the victims in the news tweets from most to least frequent.

Address terms associated with age and gender: boy(s), e.g., <u>Boys</u> rescued from cave mourn diver who died (Bangkok Post, 2018, July 15).

Address terms associated with occupation: coach, football coach, footballers, soccer players, students, Wild Boars, Wild Boars football team, football team, soccer team, members of a youth soccer team, and members of the football club, e.g., A search is underway to rescue 12 teenage <u>soccer players</u> and their <u>coach</u> who are thought to be trapped in a cave in northern Thailand (CNN International, 2018, June 25).

Address terms associated with numeral or ordinal number: 2, 3, 13, five, tenth, and eleventh, e.g., Cave rescue: All <u>13</u> out after 17-day ordeal in Thailand (BBC News (World), 2018, July 10).

Address terms associated with neutral feature: person(s), people, lives, and group, e.g., #BREAKING: A tenth <u>person</u> has been brought out of a flooded cave complex in northern Thailand (ABC News, 2018, July 10).

Address terms associated with age: children, kids, and teenagers, e.g., Rescue of trapped <u>children</u> begins (Bangkok Post, 2018, July 8).

Table 6. Spearman Rho Correlation Results of Address Terms for the Victims in the News on Twitter

		Bangkok Post	CNN	BBC	ABC
Bangkok Post	Correlation Coefficient	1.000	.572	.713[*]	.601
	Sig. (2-tailed)	.	.084	.021	.066
	N	10	10	10	10
CNN	Correlation Coefficient	.572	1.000	.525	.957[**]
	Sig. (2-tailed)	.084	.	.120	.000
	N	10	10	10	10
BBC	Correlation Coefficient	.713[*]	.525	1.000	.589
	Sig. (2-tailed)	.021	.120	.	.073
	N	10	10	10	10
ABC	Correlation Coefficient	.601	.957[**]	.589	1.000
	Sig. (2-tailed)	.066	.000	.073	.
	N	10	10	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The statistical results in Table 6 show a significant relationship between the use of address terms by Bangkok Post and BBC as well as CNN and ABC.

4. Discussion

The present research aimed at investigating the typical grammatical structures, topics, and address terms for the victims in the news of Tham Luang cave rescue on Twitter published by Thailand's Bangkok Post, the United States' CNN International, the United Kingdom's BBC World News, and Australia's ABC News. Findings are discussed below.

4.1 Grammatical Structures in the News on Twitter

The syntactic analysis of 454 news tweets posted by all the news broadcasters showed that the most typical grammatical structures were simple sentence (42.39%), noun phrase (32.81%), and complex sentence (16.95%). To be more specific, simple sentence was the most frequently used grammatical structure by all the broadcasters except BBC World News, which used noun phrase most frequently. Additionally, the most frequent grammatical structures in the news tweets by CNN International and ABC News were in similar frequency order, i.e., simple sentence, complex sentence, and noun phrase. The statistical results also showed significant relations between the grammatical uses of the four broadcasters.

Therefore, the results indicate that simple sentence, noun phrase, and complex sentence are the key grammatical structures that the broadcasters tend to use in reporting news on Twitter. The most frequent use of simple sentence by Bangkok Post, CNN International, and ABC News, and the most frequent use of noun phrase by BBC World News clearly emphasize the importance of concise writing on Twitter. As Twitter allows users to post messages with a 280-chracter limit ("Twitter," n.d.), the news tweets that the journalists created need to be clear and concise.

These results agree with prior research on the analysis of English language use on Twitter. In CNN Breaking news on Twitter, the news tweets were written in an informal register and largely in complex sentence and simple sentence to specifically inform audience of particular facts (Kaewkamjan et al., 2020). Similarly, the average tweets posted by general users were rather short, i.e., 1.54 sentences, 13.79 words, and 65.21 characters in length per tweet (Denby, n.d.). As Twitter allows users to provide hyperlinks to other websites (Denby, n.d.), the news tweets in the present research may play a role in attracting the audience's attention and subsequently direct them to the broadcasters' official websites to read the full-text articles.

4.2 Topics in the News on Twitter

The content analysis of the news tweets of Tham Luang cave rescue showed that Bangkok Post and BBC World News had similar frequency order of topics from most to least as follows: settings, victims, rescuers, and supports. CNN International and ABC News, on the other hand, had similar frequency order of topics from most to least as follows: victims, settings, rescuers, and supports.

In other words, Bangkok Post and BBC World News mainly focused on the place where the rescue operation was carried out, such as Tham Luang cave, Mae Sai district, Chiang Rai province, and Thailand. In contrast, CNN International and ABC News primarily focused on the twelve members of the Wild Boars football team and their assistant coach who were trapped in the flooded cave complex. It is clear that different broadcasters may choose different sub-topics to report in the same incident to a varying degree.

As the most frequently-reported topics in this study were victims and settings, the results agree with previous research. In the study of Tham Luang cave rescue news in three national English-language newspapers in Thailand, the findings showed that the most common frame was Search and Rescue (Chanthapan, Davis, Numdokmai, & Sutabutra, 2018). Through the use of this frame, the reporters described the laborious search and rescue operation carried out by national rescue teams in collaboration with international rescue workers and experts to locate and save the victims being trapped in the cave.

The results were also in line with the study of Twitter users' attitudes toward Tham Luang cave rescue news showing that the most frequently-mentioned topics on BBC and CNN's Twitter accounts were "the boys," "rescue," and "cave" (Laosrirattanachai & Panyametheekul, 2019). This suggests that Twitter users are concerned about the victims, discussing the process of searching and rescuing the victims, as well as talking about the place where the incident occurred. As people in general are interested to know the location of the incident during disasters (Saroj & Pal, 2020), it is reasonable for the four broadcasters in the present research to report the location information of the cave rescue incident on Twitter.

Nonetheless, the statistical results of Spearman Rho Correlation show a significant correlation between Bangkok Post and BBC only, while the three broadcasters from English-speaking countries are significantly correlated. It is possible that news reported on a Bangkok Post newspaper tends to use or follow British English patterns, and so is its news on Twitter.

4.3 Address Terms for the Victims in the News on Twitter

The analysis of address terms for the victims in the news on Twitter revealed similar frequency order of address terms used by Bangkok Post and BBC World News, i.e., address terms associated with age and gender combination (e.g., boys) and those associated with occupation (e.g., footballers, football coach, and students). On the other hand, this frequency order was in reverse in the news tweets posted by CNN International and ABC News.

As address terms can indicate social identities of the person being addressed (Johnstone, 2008), the victims in the news are often perceived and reported to belong to particular social groups, i.e., those associated with age and gender and those associated with occupation. From the results, it is clear that these address terms are neutral as the victims are males, aged eleven to sixteen, and they are members of the football team, except for the 25-year-old assistant coach. Therefore, address terms such as "boys," "footballers" or "football coach" are appropriately used to portray the victims in the news.

Like the results on topics, the use of address terms in Bangkok Post Twitter is significantly related to that of BBC, whereas the use of address terms by CNN is related to that of ABC. This indicates a significant relationship between Bangkok Post and BBC, along with CNN and ABC, in terms of preferred grammatical patterns and types of contents.

4.4 Conclusion and Recommendations for Further Research

This comparative study of news tweets of Tham Luang cave rescue, posted by Thai, American, British, and Australian broadcasters, reveals certain similarities and differences in grammatical structures, topics, and address terms for the victims in the news. In other words, simple sentence is the most typical grammatical structure in the news tweets posted by all the broadcasters except BBC World News, which uses noun phrase most frequently. While Bangkok Post and BBC World News focus mainly on the settings where the rescue operation was carried out, CNN International and ABC News, on the other hand, focus primarily on the victims trapped in the cave. Lastly, the most frequent address terms used by Bangkok Post and BBC World News are address terms associated with age and gender combination, whereas those used by CNN International and ABC News are address terms associated with occupation.

As this research obtained data from 454 news tweets of Tham Luang incident posted by the broadcasters between June 25, 2018 and July 15, 2018, the sample size may be too small to be representative of all news tweets posted by the four broadcasters in particular. Further research may investigate whether certain grammatical structure is specific to news tweets in general or specific to a certain news category. It may also delve into grammatical structures, topics, and address terms for the victims in other social media channels and/or in other traditional media, thereby revealing the extent to which they are similar or different from the findings in this research. Last but not least, it may consider applying corpus linguistics as a method of data analysis.

References

Aarts, B., & Haegeman, L. (2006). English word classes and phrases. In B. Aarts & A. McMahon (Eds.), *The Handbook of English Linguistics* (pp. 117-145). Malden, Massachusetts: Blackwell Publishing.

Armstrong, C. L., & Gao, F. (2010). Gender, Twitter, and news content. *Journalism Studies, 4*(4), 218-235.

Cambridge Dictionary. (n.d.). Topic. In *Cambridge Dictionary*. Retrieved from https://dictionary.cambridge.org/dictionary/english/topic?q=topic+

Chanthapan, W. W., Davis, R. S., Numdokmai, P., & Sutabutra, P. (2018). Inside the cave: A framing analysis of the Tham Luang cave disaster media coverage. *Western University Research Journal of Humanities and Social Science, 4*(3), 120-131.

Denby, L. (n.d.). *The language of Twitter: Linguistic innovation and character limitation in short messaging* (undergraduate dissertation). University of Leeds, Leeds, the United Kingdom.

Gonzales, J. P. (n.d.). Conventions of the English language in the Twitterverse. In *Prized Writing*. Retrieved from https://prizedwriting.ucdavis.edu/2011-%E2%80%93-2012

Hollett, J. (n.d.). How journalists can best engage with their audience. In *Twitter*. Retrieved from https://media.twitter.com/en_us/articles/best-practice/2018/how-journalists-can-best-engage-with-their-audience.html

Johnstone, B. (2008). *Discourse analysis* (2nd ed.). Oxford: Blackwell.

Kaewkamjan, K., Buddharat, C., Sukkrong, J., Promchitta, V., Phanon, W., & Polkamjad, W. (2020). English language style of CNN breaking news on Twitter application "CNN Breaking News." *Narkbhut Paritat Journal, 12*(2), 19-33.

Laosrirattanachai, P., & Panyametheekul, S. (2019). A corpus-based study of attitudes towards the incident of the Thai cave boys. *Journal of Human Sciences, 20*(3), 97-124.

Leading countries based on number of Twitter users as of October 2020. (n.d.). In *Statista*. Retrieved from https://www.statista.com/statistics/242606/number-of-active-twitter-users-in-selected-countries/

Nordquist, R. (2019). Terms of address. In *ThoughtCo*. Retrieved from https://www.thoughtco.com/term-of-address-1692533

Oshima, A., & Hogue, A. (2014). *Longman academic writing series 4: Paragraphs to essays* (5th ed.). New York City, NY: Pearson Education.

Oswald, E. (n.d.). The impact of Twitter and blog on broadcasting. In *Chron*. Retrieved from https://smallbusiness.chron.com/impact-twitter-blogs-broadcasting-63074.html

Saroj, A., & Pal, S. (2020). Use of social media in crisis management: A survey. *International Journal of Disaster Risk Reduction, 48*. https://doi.org/10.1016/j.ijdrr.2020.101584

Sayce, D. (n.d.). The number of tweets per day in 2020. In *David Sayce*. Retrieved from https://www.dsayce.com/social-media/tweets-day/

Tham Luang cave rescue. (n.d.). In *Wikipedia*. Retrieved from https://en.wikipedia.org/wiki/Tham_Luang_cave_rescue

Twitter. (n.d.). In *Wikipedia*. Retrieved from https://en.wikipedia.org/wiki/Twitter

Zhao, W. X., Jiang, J., Weng, J., He, J., Lim, E., Yan, H., & Li, X. (2011). Comparing Twitter and traditional media using topic models. *Advances in Information Retrieval. ECIR 2011. Lecture Notes in Computer Science 6611/2011.* (pp. 338-349). https://doi.org/10.1007/978-3-642-20161-5_34

Bremmen, N. (2010, September 3). The 100 most influential news media Twitter accounts. *Memeburn*. Retrieved from https://memeburn.com/about/

CNN International. [@cnni]. (2018, June 25). *A search is underway to rescue 12 teenage soccer players and their coach who are thought to be trapped in a cave in northern Thailand* [Tweet]. Twitter. Retrieved from https://twitter.com/cnni/status/1011153284470538240

BBC News (World). [@BBCWorld]. (2018, July 2). *Thai boys 'could be in cave for months'* [Tweet]. Twitter. Retrieved from https://twitter.com/BBCWorld/status/1013965865732263936

ABC News. [@abcnews]. (2018, July 8). *A group of ambulances have left the Tham Luang cave complex after rescue teams freed the first of the trapped boys.* [Tweet]. Twitter. Retrieved from https://twitter.com/abcnews/status/1015956408611803136

Bangkok Post. [@BangkokPostNews]. (2018, July 8). *Rescue of trapped children begins* [Tweet]. Twitter. Retrieved from https://twitter.com/BangkokPostNews/status/1015862668719153152

ABC News. [@abcnews]. (2018, July 10). *#BREAKING: A tenth person has been brought out of a flooded cave complex in northern Thailand* [Tweet]. Twitter. Retrieved from https://twitter.com/abcnews/status/1016622434508668929

Bangkok Post. [@BangkokPostNews]. (2018, July 10). *Tham Luang this morning after #ThaiCaveRescue* [Tweet]. Twitter. Retrieved from https://twitter.com/BangkokPostNews/status/1016832165235941376

BBC News (World). [@BBCWorld]. (2018, July 10). *Cave rescue: All 13 out after 17-day ordeal in Thailand* [Tweet]. Twitter. Retrieved from https://twitter.com/BBCWorld/status/1016655297815990273

Bangkok Post. [@BangkokPostNews]. (2018, July 15). *Boys rescued from cave mourn diver who died* [Tweet]. Twitter. Retrieved from https://twitter.com/BangkokPostNews/status/1018480003288199169

Suksamran, N. (2019, October 19). Cave rescue a story worth sharing with the world. *Bangkok Post*. Retrieved from https://www.bangkokpost.com/opinion/opinion/1775519/cave-rescue-a-story-worth-sharing-with-the-world

Most popular social networks worldwide as of October 2020, ranked by number of active users. (n.d.). In *Statista*. Retrieved from https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/