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Corpus-based Studies of Metaphor: An Overview

Norasyikin Abdul Malik[1], **Mohamad Syafiq Ya Shak[2]**, **Faizah Mohamad[3]**,
Siti Aeisha Joharry[4]

[1,2]Academy of Language Studies
Universiti Teknologi MARA Perak Branch, Perak, Malaysia

[3,4]Academy of Language Studies
Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Abstract
The researchers performed this systematic review to offer insights into the trend of the corpus-based approach in studying metaphor in recent years and investigate the potential gaps and under-researched areas in the past literature on the topic. Two research databases, namely Google Scholar and Academics, were explored to collect data. The analysis of metaphor-related research studies published between 2015 and 2020 revealed more than 78 studies dealing with the topic of investigation. After the screening process, 23 studies that met the research criteria were retained for analysis. The selected articles were further analyzed using the two-step analysis involving quantitative and qualitative approaches, i.e., descriptive statistics, and thematic analysis. The findings revealed that metaphor studies employing the corpus approach tend to use existing corpus like the Reference Corpus instead of a specialized corpus. In addition, metaphor studies in this review centered more on written discourse than spoken data. Furthermore, there is also a lack of information on the corpus tool employed in the examined studies. Meanwhile, the thematic analysis unearthed potential gaps and under-researched areas, such as limited studies on COVID-19 metaphor even though the outbreak had started at the end of 2019. Future studies on this research could include more specialized corpora, specifically in the under-researched topics, to fill in the gaps in this area of study.
Keywords: corpus approach, COVID-19 metaphor, metaphor, systematic review, thematic analysis

Introduction

The classical theorists of metaphors believed that metaphor functions as a literary device to create an artistic effect. Nevertheless, Lakoff and Johnson (1980) argued that metaphor could also be used in an everyday language because its presence is ubiquitous in daily life, even to the most mundane details. In addition, metaphor is also an excellent tool to disseminate ideology, express emotion, and communicate moral purposes (da Silva, 2016) to intended audience. It is also used to craft gender identities in society (Alhumaid, 2017). Hence, it is no surprise that it has been investigated in many types of discourse in different communications fields. Nevertheless, such research is scarce in certain types of discourse.

Corpus linguistics is a method in language study which does not necessarily link to any specific theory (Semino, 2017). Researchers can use this method alongside various theoretical descriptions in numerous fields to explain how a particular language is used. The corpus approach uses sophisticated corpus tools to analyze language in a collection of naturally occurring (either written or spoken) texts. There has been a recent trend in using the corpus approach to analyze metaphor (e.g., Adnan, 2014; Ahrens & Jiang, 2020; Sardinha, 2007; Semino et al., 2015). This conventional trend is due to the corpus tool which speeds up the linguistic analysis of a huge amount of data through language patterns and word frequencies.

Moreover, analysis of word frequencies and collocations allows the linguists to learn aspects of language based on empirical evidence (Charteris-Black, 2004) instead of relying on their judgment alone. This matter reduces the tendency of researcher's biases when performing qualitative analysis that involves the researcher's intuition and perception. Nonetheless, both quantitative and qualitative approaches play an equally significant role in linguistic analysis because a more in-depth analysis via qualitative methods can explain the results drawn from quantitative corpus analysis (Partington, 2007).

To date, corpus methods have contributed a lot to developing metaphor theory and analysis in various ways. Charteris-Black (2004), for instance, developed Critical Metaphor Analysis (CMA), which integrates corpus linguistics with cognitive linguistics and Critical Discourse Analysis (henceforth CDA) in identifying metaphors. He used CMA in analyzing metaphors in diverse discourse (e.g., sports, religious, political, business, etc.). This method is performed by following a three-step critical approach: (i) metaphor identification, (ii) metaphor interpretation, and (iii) metaphor explanation. Meanwhile, some researchers consider Corpus-Assisted Discourse Studies (CADS) as another method to study metaphor. CADS is an approach of the corpus linguistics methodology, and there is an increasing body of research in discourse that adopts the corpus linguistics approach (Jaworska, 2016). The method has been extensively employed to examine various types of discourses.

Multiple studies have been conducted to investigate metaphors in various types of discourse. This paper intends to review 23 studies to learn noteworthy perspectives on the research trends of metaphors, specifically using the corpus approach for the last six years (2015–2020). To be more specific, the study aims to answer the following research questions:
1. What is the trend of metaphor study that uses the corpus approach in the last six years (2015 – 2020)?

2. What are the potential gaps and under-researched areas in the analyzed literature?

Methodology

In the first phase of the search strategy, key terms (and any combination of these terms) 'metaphor', 'metaphor study/analysis' and 'corpus', 'corpus-based', 'corpus linguistics', and 'corpus-assisted' were used in the search items. The research publications were mainly selected by considering the title, key terms, and abstract (Tamilchelvan & Rashid, 2017). The technique revealed research publications with content that was partially or fully linked to metaphor study using the corpus approach. In the next phase, a screening process was executed to eliminate the irrelevant articles. The research publications that meet these criteria were further analyzed later.

a) Published in the English language or at least have an abstract in English
b) Providing data related to the study of metaphor using the corpus approach
c) Research studies must be published from 2015 until December 2020 so that this review would reveal recent insights into the investigated phenomenon.
d) The studies must be published in a journal or conference proceeding.

The two-step analysis suggested by Ahmed and Matthes (2017) was applied for data analysis. The analysis involves a detailed quantitative analysis that permits researchers to learn research trends and make comparisons. At this stage, the compiled studies were coded into the following categories:

1. Publication year
2. Corpus involved
3. Instruments/Tools used
4. Theoretical lens

Apart from that, the analysis also involved qualitative analysis by drawing significant themes from the compiled literature. Each study was categorized according to its overall theme. The past literature was segmented and classified under the same themes and categories. The thematic categorization was checked and certified by an inter-rater, a senior researcher in this field, to diminish any issues relating to the validity and reliability of the qualitative findings.

Results

The objectives of this systematic review were (i) to discover the trend of metaphor research that used the corpus approach in the last five years and (ii) to identify the potential gaps and under-researched areas in the analyzed literature, particularly in terms of methodological and topic findings. In meeting the first objective of the review, the discussion of the trend of metaphor research from 2015 to 2020 was done based on a quantitative analysis of these categories: (a) publication year, (b) corpus involved, (c) instrument/tool used, and (d) theoretical lens, while the data from thematic analysis helped the researcher to meet the second research objective based on the identified themes. Table 1 summarises the publication year, type of corpus, instrument/tool used, and theoretical perspective raised in the chosen past literature.

Table 1. *Content analysis of the selected past studies*

No	Author/Year	Corpus	Theoretical Perspective	Instrument/Tool
1	Gil (2019)	Economic reports in English and Spanish press	Critical Metaphor Analysis (Charteris-Black 2004)	#Lancsbox (Brezina et al. 2015)
2	He & Yang (2017)	Academic papers on natural sciences and social sciences and BNC	Grammatical metaphor (Halliday, 1985, 1994; Halliday & Matthiessen, 2004, 2014)	search queries.
3	He & Wen (2017)	Corpus of Historical American English (COHA), the Corpus of Contemporary American English (COCA) and the British National Corpus (BNC)	Halliday and Matthiessen (2004, 2014) grammatical metaphor	search queries
4	Herțeg (2019)	British business English press	Conceptual Metaphor Theory & Corpus Linguistics	Concordancing program
5	Zhao, Han, & Zhao (2019)	*Pavilion of Women*, a novel by Pearl S. Buck	Conceptual Metaphor Theory MIP and MIPVU	Antconc3.2.4w
6	Skorczynska & Ahrens (2015)	U.S. presidential addresses, popular science articles, and business periodical articles	Metaphor signalling (Miller, 1993; Ortony, 1993; Glucksber & keysar, 1993; Goatly, 1997; Cameron & Deignan, 2003; Skorczynska & Piqué, 2005, Partington, 2006)	WordSmith Tools 5 (Scott 2008)
7	Zibin (2020)	Political and economic articles from daily Jordanian newspapers	Critical Metaphor Analysis (CMA)	WordSmith Tools (Scott 2012)
8	Luo (2018)	Center for Chinese Linguistics (CCL) Corpus	Metaphor of Cognitive Linguistics	Not mentioned
9	Semino, Demjen, & Demmen (2018)	online forum posts on a publicly available UK-based website for people with cancer	Conceptual Metaphor Theory (Lakoff & Johnson, 1980) &	Wmatrix (Rayson 2008)
10	Stampoulidis & Bolognesi (2019)	Street artworks addressing the financial, socio-political, and migrant/refugee crisis in Athens	Cognitive semiotic principles: conceptual–empirical loop and methodological triangulation (Sonesson, 2014; Zlatev, 2009, 2015; Zlatev et al., 2016)	Not mentioned
11	Afrashi & Ghouchani (2018)	Persian Linguistic Database corpus (fiction, nonfiction, play, scenario, newspapers, etc.)	Conceptual Metaphor Theory (Lakoff, 1987; Kovecses, 2002)	Not mentioned
12	Güldenring (2017)	New Englishes (spoken in Nigeria, Kenya, India, & Singapore) in the Global Web-based English corpus (GloWbE; Davies 2013)	Conceptual Metaphor Theory (Lakoff & Johnson 1980)	GloWbE web interface, BYU corpus interface, & spreadsheet software

13	Potts & Semino (2017)	U.S. health professionals' online discourse and British healthcare professionals' writing online in the MELC-UK corpus	Conceptual Metaphor Theory (Lakoff, 1987; Kovecses, 2002)	Wmatrix (Rayson 2008)
14	Gandomkar (2019)	Syntactic Corpus of Persian Language (Kouhestani & Moloodi, 2013)	Conceptual Metaphor Theory (Lakoff & Johnson 1980)	Not mentioned
15	Dodge (2016)	MetaNet (M.N.) metaphor repository	Conceptual Metaphor Theory (Lakoff & Johnson 1980 1999; Lakoff 1993), Frame Semantics (Fillmore 1982; Ruppenhofer et al. 2016)	Not mentioned
16	Ahrens & Jiang (2020)	Hong Kong Chief Executives Corpus (1997–2014), a sub-corpus of the HKBU Corpus of Political Speeches (Ahrens, 2015)	Source domain verification and corpus linguistics	SUMO (Suggested Upper Merged Ontology), WordNet, & online dictionary
17	Naicker (2017)	*The Complete Works of Swami Vivekananda*, ancient Hindu scriptural lore	Conceptual Metaphor Theory (CMT) & cognitive linguistics (CL)	AntConc
18	Raffaelli & Katunar (2016)	Sports discourse in Croatian	Conceptual Metaphor Theory (Lakoff & Johnson 1980)	Not mentioned
19	Da Silva (2016)	News and opinion articles corpus (dated: June-July 2011 and May 2013)	Cognitive Linguistics, Critical Discourse Analysis, & Conceptual Metaphor Theory	Not mentioned
20	Krennmayr (2015)	63 texts from British newspapers randomly sampled from the news section of the BNC-Baby Corpus	Corpus Linguistics	Corpus-based dictionaries (Macmillan English Dictionary) Part of speech taggers in BNC
21	Semino (2016)	Data from Oxford English Corpus (OEC)	none	Sketchengine (Kilgarriff et al., 2004)
22	Potts & Semino (2019)	British National Corpus, the Corpus of Contemporary American English, and an ad hoc corpus of reportage collected from Nexis (1 June-1July 2017)	Conceptual Metaphor Theory & Discourse analysis	Sketch Engine (Kilgarriff et al., 2014)
23	Jaworska (2017)	Descriptions of tourist destinations in Britain (Home-Corpus), Europe (Europe-Corpus), and in faraway tropical countries (FarawayCorpus)	none	Wmatrix & USAS tags; Oxford English Dictionary (OED) (2016)

Distribution of Published Journals (2015–2021)

The findings revealed that the overall mean of 3.83 research studies related to metaphor using the corpus approach per year seems low for six years. Figure 1 highlights a fluctuated trend of research studies on the said topic. There is an increasing trend of research studies from 2015 (N=2) until 2017 (N=6). Nevertheless, the number decreased in 2018 (N=3) before escalated again in the following year (N=6) and declined again in 2020 (N=2).
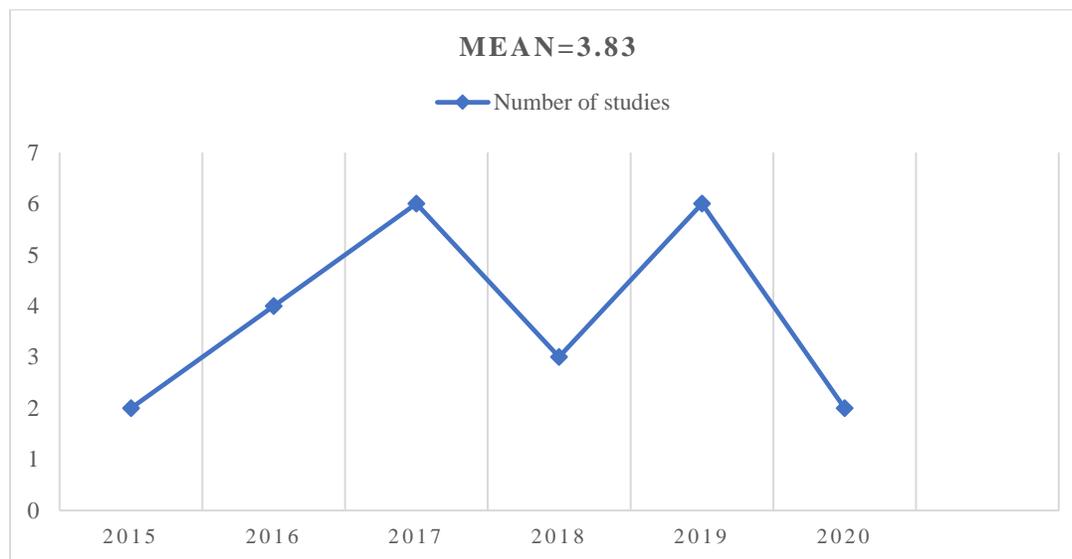

Figure 1. Research trends of metaphor study using corpus approach (2015-2020)

Corpus Used

Apart from the distribution of published journals, the quantitative analysis revealed the trend of research studies regarding the corpus used in the selected literature. As illustrated in Figure 2, most of the literature analyzed existing corpus as 39% of the past studies examined data taken from existing reference corpus or corpus database. For example, He and Wen (2017) analyzed the Corpus of Historical American English (COHA), the Corpus of Contemporary American English (COCA), and the British National Corpus (BNC). Meanwhile, Potts and Semino (2019) examined the British National Corpus (BNC), the Corpus of Contemporary American English, and an ad hoc corpus of reportage collected from Nexis (1 June-1July 2017). On the other hand, Jaworska (2017) investigated descriptions of tourist destinations in Britain (Home-Corpus), Europe (Europe-Corpus), and faraway tropical countries (Faraway Corpus), while Afrashi and Ghouchani (2018) studied the Persian Linguistic Database corpus. This is followed by news articles with a total of 13% that include news and opinion articles (Da Silva, 2016), British business English press (Herteg, 2019), and economic reports in English and Spanish press (Gil, 2019). In the meantime, business, literature, and health corpora have a similar percentage (9%). Academic corpus followed with 5%. The lowest percentage, 4%, is shared by four corpora types: political, sports, artwork, and mixed corpus.
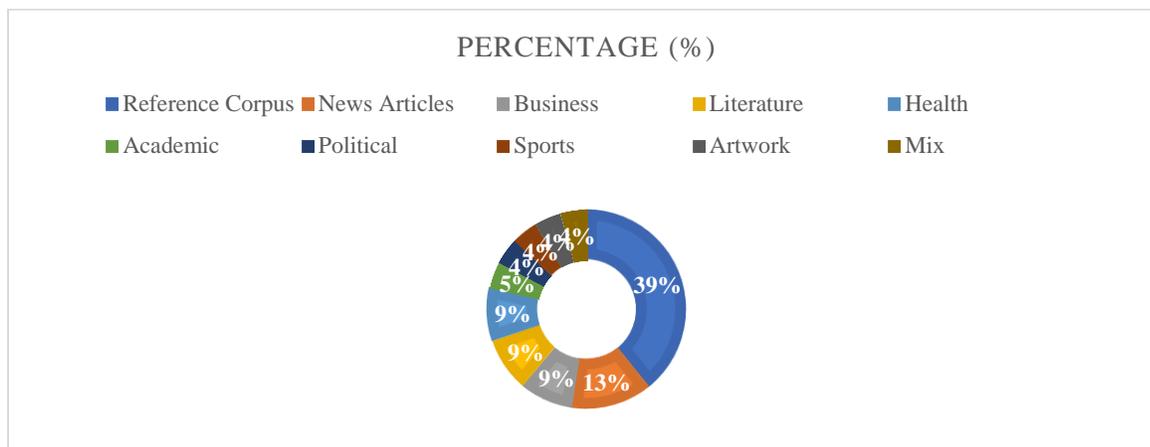
Figure 2. Corpus Used in the Selected Literature

Instruments Employed

As shown in Figure 3, most studies did not mention the specific instrument or tool employed in analyzing the data, with 26.1% (N=6). Then, 21.7% (N=5) of the studies used multiple instruments to analyze the data. Then, five different tools were used, namely WordSmith Tools, Antconc, Wmatrix, Sketch Engine, and search queries, with a similar percentage, 8.7% (N=2). Fewer studies (N=1, 4.3%) employed the #Lancsbox and concordance programme to analyze the collected data.
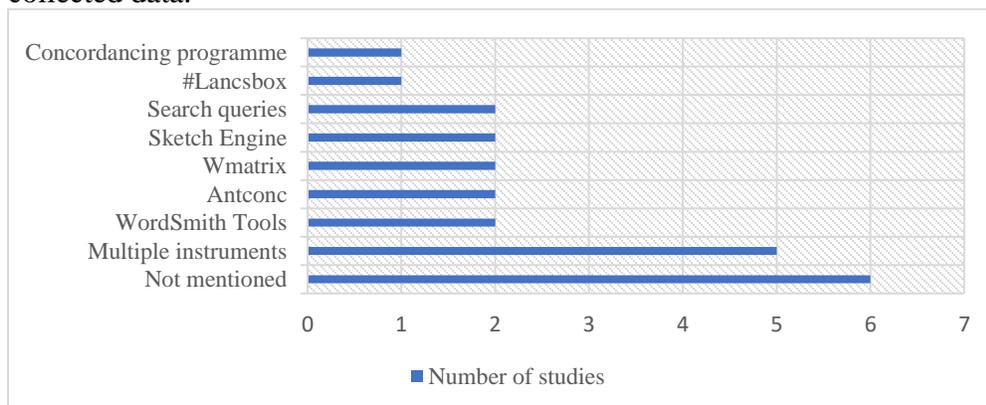

Figure 3. Instruments Employed in the Analyzed Studies

For example, Da Silva (2016) did not state the instrument used in analyzing news and opinion articles corpus. Similar evidence was found in Dodge's (2016) research, which examined concepts of poverty-related metaphors in the MetaNet metaphor repository.

Interestingly, it is also found that the other past studies that did not mention the instrument used were analyzing non-English corpus. For instance, Raffaelli and Katunar (2016) studied sports discourse in Croatian. They only noted that frequency analysis identified conceptual metaphors in the Croatian corpus. Meanwhile, Gandomkar (2019) and Afrashi and Ghouchani (2018) analyzed the Persian corpora. Gandomkar examined thematic categorization and conventional metaphor and metonymy among Persian speakers. He only mentioned deductive method and frequency analysis were employed in the study. In the meantime, Afrashi and Ghouchani (2018) compared the FEAR metaphor between Persian and English languages. Luo (2018) also studied a non-English corpus,

i.e., Chinese TALK metaphor using the Center for Chinese Linguistics (CCL) Corpus, while Stampoulidis and Bolognesi (2019) studied a non-language corpus, i.e., (verbo-) pictorial metaphor in street artworks in Athens. Apart from that, many researchers used multiple instruments in studying metaphors in their research. For instance, in Ahrens and Jiang (2020), corpus-based linguistic tools such as SUMO (Suggested Upper Merged Ontology), WordNet, collocational patterns, and an online dictionary were employed to verify keywords for the BUILDING metaphors.

Theoretical Lens

Figure 4 illustrates the theoretical lens employed in the examined past literature. The figure shows that 73.9% (N = 17) of the studies used either a grand or middle-range theory as a theoretical lens.
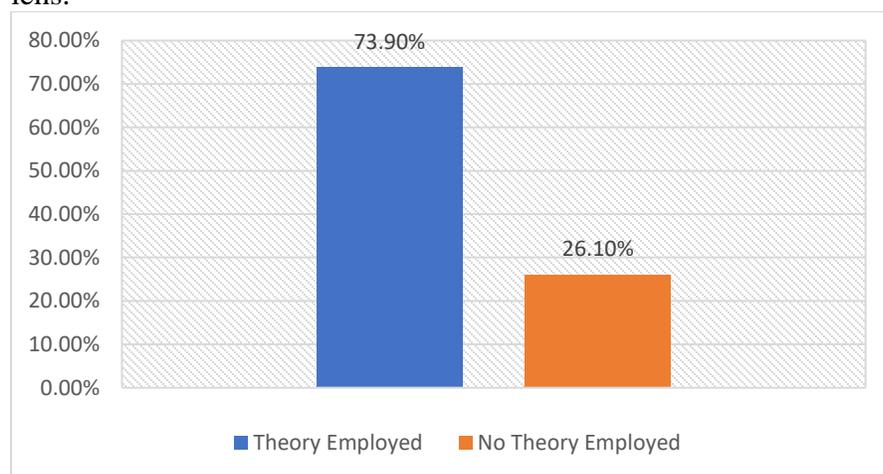

Figure 4. The Theoretical Lens Employed in the Analyzed Studies

Most of these past works of literature (e.g., Afrashi & Ghouchani, 2018; Dodge, 2016; Gandomkar, 2019; Güldenring, 2017; Herteg, 2019; Potts & Semino, 2017; Raffaelli & Katunar, 2016; Semino, Demjen, & Demmen, 2018; Zhao, Han, & Zhao, 2019) employed Conceptual Metaphor Theory (CMT) in their studies. Some studies used the CMT and paired it with other theories, such as Naicker (2017), who analyzed an ancient Hindu scriptural lore using the CMT and the theory in Cognitive Linguistics. Another study conducted by Da Silva (2016) employed the CMT with Critical Discourse Analysis (CDA) and the theory in Cognitive Linguistics in studying persuasive metaphors in the Portuguese press, while Potts and Semino (2019) used both the CMT and Discourse Analysis (DA) in studying the CANCER metaphors. Other than CMT, it is evident that Critical Metaphor Analysis (CMA) was also preferred by the researchers of metaphor based on the analyzed past literature. For example, Gil (2019) used it as a theoretical lens in studying ideology and persuasion in economic reports in English and Spanish press, while Zibin (2020) used the theory to examine metaphors describing Syrian refugees in Jordanian newspapers. Apart from the CMT and the CMA, the theory of Grammatical Metaphor was employed in two past studies. It was used in He and Yang's (2017) study that examined text technicality and ideational metaphor and in He and Wen's (2017) study that investigated grammatical and textual metaphor. Finally, Luo (2018) used theory in Cognitive Linguistics to analyze the Chinese TALK metaphor.

Meanwhile, another 26.1% (N = 6) of the studies did not employ any grand or middle-range theory, as shown in Figure 4. For example, Ahrens and Jiang (2020) and Krennmayr (2015) both used corpus linguistics, i.e., a method in language study which does not essentially relate to any specific theory (Semino, 2017). Apart from that, even though no theory was used in a study conducted by Semino (2016), she used corpus analysis, i.e., lemma search and concordance analysis, to identify metaphors in Oxford English Corpus (OEC). Meanwhile, Jaworska (2017) and Stampoulidis and Bolognesi (2019) identified metaphors using Metaphor Identification Procedure (MIP) guidelines without using any theoretical lens. The same goes with Skorczynska and Ahrens (2015), who used metaphor signaling and MIP guidelines to examine words and phrases metaphors in different genres.

Thematic Analysis

This analysis phase provides the possible gaps and omissions in terms of the focus of the metaphor studies that employed the corpus-based approach. The findings at this stage also offer some insights into recommended issues of the under-researched areas in metaphor study, which help close the identified gaps. The data from the thematic analysis revealed several themes to meet the second research objective, i.e., to determine the potential gaps and under-researched areas in the analyzed literature. Table 2 illustrates the identified themes from the synthesis of the research studies in response to the second research objective of this study.

Table 2. *Overview of the findings of qualitative thematic screening*

No	Drawn Themes	Author(s)/Year
1	Conceptualizations and patterns of metaphors	Skorczynska & Ahrens (2015)
		Krennmayr (2015)
		Dodge (2016)
		Semino (2016)
		Raffaelli & Katunar (2016)
		He & Wen (2017)
		He & Yang (2017)
		Naicker (2017)
		Herțeg (2019)
		Gandomkar (2019)
		Stampoulidis & Bolognesi (2019)
		Ahrens & Jiang (2020)
		Zibin (2020)
2	metaphor and health	Potts & Semino (2017)
		Semino, Demjen, & Demmen (2018)
		Potts & Semino (2019)
3	metaphor, ideology, and persuasion	Da Silva (2016)
		Jaworska (2017)
		Gil (2019)
4	metaphor and culture	Luo (2018)
		Zhao, Han, & Zhao (2019)
5	metaphor and languages	Güldenring (2017)
		Afrashi & Ghouchani (2018)

As illustrated in Table 2, most of the examined past studies were highly focused on the conceptualization and patterns of metaphor. Across the 23 studies, 13 studies concentrated mainly on analyzing the word(s) or phrase(s) that could be the source domains of metaphor in a discourse

or examining types of metaphors. For example, Skorczynska and Ahrens (2015) studied words and phrases which signal metaphors in the discourse of three different genres, i.e., U.S. presidential addresses, popular science articles, and business periodical articles. They found three metaphor signal categories through the analysis, i.e., copular similes, verbal processes, and modals/conditionals. Meanwhile, He and Wen (2017) investigated the diachronic and genre distributions of two types of textual metaphor identified. These types are conventionalization of conjunctive adverbial groups and pre-positionalization of hypotactic conjunction groups. In a much more recent study, Herteg (2019) explored different conceptualizations of the ECONOMY metaphors in the British business English press through a concordance analysis of headwords from various sources and target domains. From this evidence, it can be concluded that researchers of metaphor were fond of studying how metaphor is constructed and exists in a discourse. This revelation suggests that there are under-researched areas that researchers who are keen on studying metaphor can explore to understand better how metaphor works together with its impact when being used in a discourse, either spoken or written.

Gibbs (2008) stated that metaphor is deemed a creative communicative function that permits people to surpass the boredom of discourse. Therefore, it can be found in various discourses like political discourse, business communications, advertisements, news reports, and even religious scriptures. Nevertheless, the thematic analysis reveals that many under-researched areas have not been extensively explored in terms of their usage and effect. As tabulated in Table 2, only three studies concentrated on how metaphor was used in health discourses. Despite the COVID-19 pandemic starting to hit the world at the end of 2019, no research focuses on metaphor usage regarding the pandemic. Only two studies conducted before 2019 delved into metaphor in health discourse. As an illustration, Semino, Demjen, and Demmen (2018) examined the function of metaphor in framing the metaphors for cancer, while Potts and Semino (2017) analyzed healthcare professionals' online use of violence metaphors for care at the end of life in the U.S. and the U.K.

Only three studies focused on the area regarding the corpus-based research of metaphor and its function in disseminating ideology and acting as a medium of persuasion. It is undeniable that the use of metaphor is prevalent in persuasive discourses. Its use varies from politics (e.g., Lenard & Ćosić, 2017; Stojan & Mijić, 2019) to advertisements (e.g., Jeong, 2008; Van Mulken, Van Hooft, & Nederstigt, 2014). Yet, it is surprising to see those studies, especially those that use the corpus approach, are limited in this area. One such study was completed by Da Silva (2016), who examined news and opinion articles corpus persuasive and manipulative power of metaphor of austerity in the Portuguese press.

The evidence also reveals that the research on metaphor and culture that used the corpus approach is limited to the Chinese culture. There were only two studies that focused on metaphor and culture. For instance, Luo (2018) investigated the Chinese TALK metaphors in the Center for Chinese Linguistics (CCL) Corpus. Meanwhile, Zhao, Han, and Zhao (2019) examined the metaphors used in *'Pavilion of Women'*, a novel by the Nobel Prize-winning author Pearl S. Buck, and their relationship with Chinese Yin-Yang semiotics and the author's experiences in China.

Finally, the same lack of focus was also identified in the research of metaphor and languages since there were only two studies that focused on the area based on the thematic analysis in this review. Despite its prominence in various types of discourse across languages, not many

researchers of metaphors are fond of using the corpus approach in examining metaphors in multiple languages. This situation is another gap that researchers of metaphor in the future can fill.

Discussion

Based on the data of the distribution of published journals, the research standpoints on metaphor study using corpus approach did not show a consistent and steady increment over the years, i.e., 2015 until 2020. Nevertheless, the upsurges with the highest numbers in 2017 and 2019 indicate positive interest trend of research studies of the area.

Apart from that, the corpus used in the distribution of the synthesized studies proposes a trend among the researchers of metaphors in using existing large-sized corpus compared to building their own specialized corpus, specifically spoken discourse. It is understood that the supremacy of written data in corpus studies is due to the complications and expense related to recording, transcribing, and compiling corpora of the spoken discourse (Römer, 2006; McCarthy, 2008). Nevertheless, metaphor research in spoken discourse should not be neglected regardless of the reasons. It can contribute to the body of knowledge in understanding the construction, function, and impact of metaphor in such discourse. In further understanding metaphor, researchers of metaphor should examine it in the written corpus and the spoken material within specific and distinguishable genres (Goatly, 2007). Henceforward, it allows the researchers to learn how language such as metaphor is used in real-life situations. The distribution also reveals several gaps in the knowledge and understanding of metaphor use in other types of discourse that are not listed in the synthesised studies. For example, no single study of metaphor used the corpus approach focusing on religious discourse. There has been only a handful of studies conducted on metaphor in spoken religious discourse compared to other types of discourse (Wardani, 2019) which indicates a scarcity of research conducted in the area of study.

Meanwhile, the findings related to the corpus tool preferred by the researchers of metaphor in their studies highlights another gap. Since most of the researchers did not specifically mention the corpus tool used to analyze their data, it reflects the instrument used is not a significant element in corpus research, specifically in studying metaphors. If the devices can produce a basic frequency list, keyword list, collocates, and concordance lines, they are viable and adequate to help researchers study metaphors in a discourse. It was also revealed that some of these past studies analyzed non-English corpus which explains the…. Since the latter part of metaphor analysis is still done qualitatively, contemporary researchers of metaphors are trying to find systematic and efficient ways to examine metaphors in discourse. This matter helps to reduce the researcher's biases and influence in identifying metaphors in discourse. Then, it can also be concluded WordSmith Tools, Antconc, Wmatrix, and Sketch Engine are the common corpus tools used to analyze metaphor in a discourse.

In terms of theoretical lens, most of the analyzed past literature employed Conceptual Metaphor Theory (CMT) even though it has received a lot of criticism from contemporary researchers of metaphors. Kövecses (2008) stressed that the theory is mainly criticized due to the issue of methodology, direction of analysis, schematicity, embodiment, and relationship with culture. However, the breakthrough of the CMT paves the way for the avid researchers of metaphor to discover the manifestation of thought through the conceptual mappings of linguistic metaphors.

Hence, it is still being employed as a theoretical perspective in many metaphor studies. Some of the other analyzed past studies did not use any theory in studying metaphor. These researchers of metaphor utilized corpus approach to identify metaphor in a discourse. The research involved quantitative analysis such as word frequencies and collocations which allow the linguists to learn aspects of language based on empirical evidence (Charteris-Black, 2004). This matter enables various theoretical descriptions in numerous fields to explain how a particular language is used. Semino (2016), she used corpus analysis, i.e., lemma search and concordance analysis, to identify metaphors in Oxford English Corpus (OEC). Meanwhile, Jaworska (2017) and Stampoulidis and Bolognesi (2019) identified metaphors using Metaphor Identification Procedure (MIP) guidelines without using any theoretical lens. The same goes with Skorczynska and Ahrens (2015), who used metaphor signaling and MIP guidelines to examine words and phrases metaphors in different genres.

Conclusion

This review exposed several gaps in the selected studies. First, the corpus-based studies of metaphor in this review focused on written discourse. Other specialized corpora are understudied, especially the ones that involve spoken discourse. As suggested by Mauranen (2006), analyzing spoken discourse that happened naturally could provide fresh insights into language while revitalizing linguistics and challenging "the adequacy of sentence-based models which have developed from analyzing written [discourse] – or invented sentences" (2006, p.143).

Secondly, the researchers of the reviewed past studies utilized analytical tools that are not explicitly intended for metaphor analysis. These researchers used tools that could produce basic frequency and concordance lists, such as #Lancsbox, WordSmith, Wmatrix, and GloWbE web interface. This situation could be attributed to the lack of specific analytical tools to analyze metaphors. However, at least two tools are available on the internet for this purpose. The first one is VU Amsterdam Metaphor Corpus, a corpus tool for metaphor identification by Steen et al. (2010). The second one is FinMeter, a tool for analyzing Finnish poetry's meter and rhyme, semantics, and metaphors.

Third, the Conceptual Metaphor Theory (CMT) was still highly referred to across the selected studies. Lakoff and Johnson (1980) who proposed the theory has had more than its fair share of criticism over the years (Cameron, 2007, 2010; Gibbs,2011; Kövecses, 2020; Zhang, 2021). Gibbs (2009), for instance, reported that this theory had been widely criticized "both as a theory of metaphor use and for its claims about the embodied, metaphorical character of abstract thought" (2009, p.14). Cserep (2014) seemed to agree with this by suggesting that this theory lacks clarity in some of its statements and only a little attention was devoted to cross-cultural and linguistic aspects" (2014, p.283). Not only that but after more than thirty years the theory was introduced, more recent theories of metaphors have emerged (Barnden, 2006; Gibbs, 2008; Ortony, 1993; Vega, 2007; Wilson & Carston, 2006, 2008).

Fourth, the selected studies from the year 2020 in this review did not focus on investigating metaphors used to report the COVID-19 pandemic, even though it is an exciting area to be looked at. The situation, however, could be linked to the fact that in early 2000, the pandemic was still in

its initial stage before it started to wreak havoc around the world as the year 2020 progressed in which, more materials on metaphors were readily available to be analyzed.

Suggestions for Future Studies

This review examined the recent trend of corpus-based approaches to analyzing metaphor and offered possible gaps and under-researched topics that might be identified in the topic's prior work. It is suggested that future studies on this topic could include more specialized corpora that are currently under-researched, especially the spoken ones. Future studies could also initiate analyses of metaphors between different languages or genders to see whether such factors can play a role in how metaphors are employed in discourses. On the other hand, studies on metaphors using the corpus approach have concentrated highly on their conceptualisation and patterns in a corpus or discourse. Therefore, it is high time for such studies to focus on its functions in culture, public communication, ideology or propaganda dissemination, and health, especially during the COVID-19 pandemic.

In relation to the use of metaphor in the pandemic era, researchers can analyze plenty of thought-provoking aspects. These aspects could include different ways on how metaphors explain the virus, how it spreads, where it is being spread to, and how to contain the virus. Furthermore, the types of metaphors used to explain COVID-19, such as war, disaster, and visual metaphors could also be examined. Apart from that, emerging symbols and alternative forms of communication used metaphorically to symbolize the situations around the pandemic could be another fascinating aspect of metaphor analysis in the pandemic era. This includes symbols such as the 'White Flag' campaign in Malaysia, where Malaysians who were struggling amid a strict lockdown were flying white flags outside their homes as a plea for help,

About the Authors

Norasyikin Abdul Malik is a lecturer at the Academy of Language Studies at Universiti Teknologi MARA (UiTM) Perak Branch, Seri Iskandar, Malaysia. Her research interests include metaphor study, corpus linguistics, figurative language, and semantic. She is currently pursuing her PhD in Applied Linguistics. Orcid ID: https://orcid.org/0000-0002-8867-547X
E-mail address: noras967@uitm.edu.my

Mohamad Syafiq Ya Shak, is a member of the Academy of Language Studies, UiTM Perak. the Academy of Language Studies at Universiti Teknologi MARA (UiTM) Perak Branch, Seri Iskandar, Malaysia. His research interests include material development and evaluation, vocabulary learning, and corpus linguistics.
Orcid ID: https://orcid.org/0000-0002-4702-6633
E-mail address: moham381@uitm.edu.my

Assoc. Prof. Dr. Faizah Mohamad is senior lecturer at the Academy of Language Studies at Universiti Teknologi MARA (UiTM) Shah Alam, Malaysia. Her research is situated in the field of technology enhanced learning, ICT in education, e-learning in higher education, and online education. Orcid ID: https://orcid.org/0000-0003-3029-6132
E-mail address: fareema@uitm.edu.my

Dr. Siti Aeisha Joharry is a senior lecturer at the Academy of Language Studies at Universiti Teknologi MARA (UiTM) Shah Alam, Malaysia. Her expertise and interests, among other things, are corpus linguistics, applied linguistics, and critical discourse analysis. Aeisha teaches several English courses for degree students and supervise Master and PhD students.
Orcid ID: https://orcid.org/0000-0002-1231-0589
E-mail address: aeisha@uitm.edu.my

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