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Integrating frame semantic resources in EFL instruction with a focus on deliberate metaphor

Abstract: This article explores the intersection between metaphor research, lexicography and language teaching/learning. It is motivated by the general recognition of the ubiquity of metaphor in language and the growing interest in building electronic repositories of figurative language, along with its inadequate representation in foreign language instructional materials. With a view to demonstrating how frame semantic resources (FrameNet and MetaNet) can be used for enhancing EFL learners' metaphorical competence, this article presents a typology of frame-based tasks for raising learners' awareness of deliberate metaphor. A number of tasks are designed along a continuum from receptive to productive and from controlled to open-ended ones in order to illustrate the potential of frame semantic resources to serve as flexible teaching/learning tools. Findings from using these tasks in a university EFL classroom show that frame-aided instruction can enhance learners' metaphorical competence as this is reflected in L2 written data and learners' own perceptions.

Keywords: FrameNet, MetaNet, Deliberate Metaphor Theory, metaphorical competence

1 Introduction

Metaphor research and lexicography have a bidirectional and mutually beneficial relationship. On the one hand, many authors (van der Meer 1999; Moon 2004; Geeraerts 2007; Adamska-Sałaciak 2008; Atkins/Rundell 2008; Kövecses/Csábi 2014; Ostermann 2015; Xu/Lou 2015; Dalpanagioti 2018, to name just a few) have explored the relevance of cognitive approaches to lexicography and, in particular, the Cognitive Theory of Metaphor and Metonymy (initiated by Lakoff/Johnson 1980) has informed learner's dictionaries like MED, which includes metaphor boxes. On the other hand, dictionary use has contributed to metaphor research, which has employed lexicographical (corpus) techniques to examine metaphors in discourse and relied on dictionaries to operationalize

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metaphor identification procedures (like MIP/VU) with consistency and replicability (Deignan 2015).

The productive relationship between lexicography and cognitive linguistics has given rise to a new research direction, retrieving and annotating metaphors and metonymies in digital databases. Providing an overview of the trending topic of building electronic repositories of figurative language, Bolognesi/Despot (2019) describe the progress that has been made from the early metaphor-annotated datasets like the Master Metaphor List to the most recent digital resources like MetaNet, its sister Croatian Metaphor Repository (MetaNet.HR), the Córdoba Metonymy Database, the VisMet Corpus of Visual Metaphors, Metaphor Magnet and other web services for figurative language generation. This wide variety of resources illustrates the different faces of metaphor (conventional metaphor, which may even be invisible, and novel metaphor, which is creative and disruptive), the different levels at which metaphor can occur (language or image, thought and communication), and different methods of metaphor identification and analysis (manual vs. automated and top-down vs. bottom-up) that complement each other (ibid.).

Against this background, the present study adds one more facet to the interaction between lexicography and metaphor research and this is the user perspective in the context of foreign language teaching and learning. More precisely, the teaching/ learning goal the study focuses on is raising EFL learners' awareness of deliberate metaphor, i.e. metaphor used *as* metaphor in communication between language users (Steen 2017). This article reports on a classroom intervention that was theoretically informed by Frame Semantics and utilized frame-representational lexicographic resources, FrameNet and MetaNet, to enhance (upper intermediate/ advanced) EFL learners' productive metaphorical competence. After briefly discussing these lexicographic resources and the concepts of 'deliberate metaphor' and 'metaphorical competence', the article presents a typology of frame-based tasks for raising learners' awareness of deliberate metaphor. It then shifts focus from the teacher's to the learner's perspective and investigates the learning outcomes of the frame-aided instruction by examining the use of potentially deliberate metaphor in learners' essays and by exploring learners' perceptions regarding the lexicographic resources used.

2 Background: Frame semantic resources, deliberate metaphor and language learning

This section sets the background of the study, which brings together lexicography (FrameNet and MetaNet), metaphor research (Deliberate Metaphor Theory) and language learning (metaphorical competence). The aim of the study is to demonstrate how frame semantic resources can be used for designing tasks for raising EFL learners' awareness of deliberate metaphor, and whether such a frame-aided instruction can enhance learn-

ers' metaphorical competence as this is reflected in L2 written data and learners' own perceptions.

Using FrameNet and MetaNet, the study draws on Frame Semantics, a theory of meaning that "emphasizes the continuities between language and experience" (Petruck 1996: 1), as it is built on the idea that the meanings of words should be interpreted against common backgrounds of knowledge, the 'semantic frames' (Fillmore 1982). A frame consists of specific 'frame elements', which are the "various participants, props, and other conceptual roles" involved in the schematic representation of a situation (Fillmore/Petruck 2003: 359). The appeal of Frame Semantics is that it connects the conceptual and linguistic levels of knowledge representation. This is done in practice in lexicographic resources like FrameNet and MetaNet. In the Berkeley FrameNet project frames, frame elements and frame-to-frame relations are described, frame-evoking lexical units are identified,[1] and corpus-derived sentences are annotated in terms of frame elements, phrase types, and grammatical functions (Ruppenhofer et al. 2016: 7–8). In the MetaNet project lexical units are associated with frames, which in turn are associated with conceptual metaphors, and linguistic metaphors are thus modelled as frame-to-frame mappings. MetaNet consists of a hierarchically-organized conceptual metaphor repository and a metaphor identification system that detects, categorizes, and analyzes expressions of metaphor in large-scale text corpora (David/Matlock 2018). As Stickles et al. (2016) note, MetaNet "owes much to the instantiation of Frame Semantics in FrameNet", yet MetaNet frames are not based directly on FrameNet frames but are developed in the process of metaphor analysis (p. 172).

The present study uses both FrameNet and MetaNet (the MetaNet Metaphor Wiki) not only because they are interrelated and available online, but also in order to overcome coverage limitations and add variety to the activities and the skills developed. For example, the MetaNet entry for the metaphor ADDRESSING SOCIAL PROBLEMS IS WAGING WAR (see Figure 1) provides the mappings between the frame elements, authentic illustrative examples and a graph with related metaphors. This information can assist metaphor understanding in a receptive activity concerning reading a text which systematically uses words related to war to talk about a social problem (e.g. poverty, climate change, cancer, etc.). However, in a productive activity that encourages finding a different perspective and appropriating concepts and language through metaphor to communicate a message, what is useful is not a list of metaphors (or frames) but rather access to descriptions of frames to work with more creatively. This need is better served by FrameNet in a detailed and user-friendly manner, as illustrated by Figure 2 which provides part of the description of the Travel frame. This frame involves a TRAVELER that moves from a SOURCE to a GOAL along a PATH, and is evoked by LUs such as *journey*, *trip*, *odyssey*, *pilgrimage*. The frame elements are highlighted in different colors in the frame definition and in the example sentences. The Travel frame inherits from the

1 The lexical unit (LU, i.e. word in one of its senses) is the basic unit of description.

Source Frame	War
Target Frame	Addressing social problems

Mappings:

society	<=	battlefield
social_problem	<=	enemy_attack
authorities	<=	generals
public_officials	<=	army
immoral_citizens	<=	enemy_combatants
police_weapons	<=	weapons
social_programs	<=	war_strategies
honest_citizens	<=	civilians
solving_problem	<=	victory
spread_of_problem	<=	enemy_conquest
power_to_solve_problems	<=	power_of_weapons

Examples:

Example Text:	The most powerful weapon in the war against obesity might be something we all understand: cold, hard cash.
Provenance:	http://www.forbes.com/sites/davidmaris/2012/05/07/cash-as-weapon-in-the-war-against-obesity/

Example Text:	How America's losing the war on poverty
Provenance:	http://www.npr.org/2012/08/04/158141728/how-americas-losing-the-war-on-poverty
Comments:	entailment of general metaphor: inability to address social problems is losing the war

Graph of related metaphors:

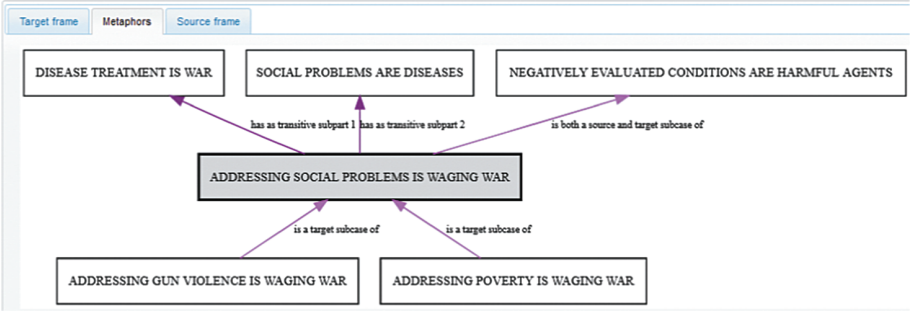

Figure 1: The MetaNet entry for the metaphor ADDRESSING SOCIAL PROBLEMS IS WAGING WAR.

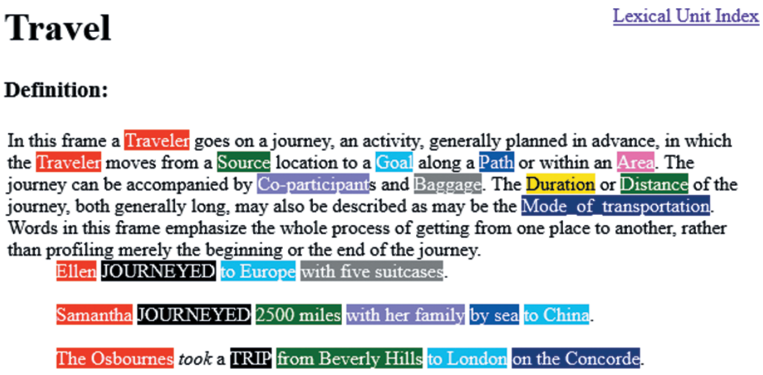

Figure 2: Part of FrameNet's [Travel] frame description.

more general frame Self_motion and is inherited by the more specific frame Setting_out. These frames could be useful in activities which take account of metaphor research that calls for revisiting militaristic metaphors in more positive terms without evoking images of death, destruction and suffering (see e.g. Demjén/Semino 2017). On the whole, FrameNet and MetaNet have been chosen to supplement EFL instruction because their scope can go beyond conventionalized uses of words.

Relevant in this respect is Deliberate Metaphor Theory, which emphasizes metaphor analysis at three levels: linguistic, conceptual, and communicative (Steen 2008, 2017, 2023). Deliberate Metaphor Theory draws attention to "the intentional use of metaphors *as* metaphors between sender and addressee" (Steen 2017: 1). The central feature of deliberate metaphor is the prominence of the source domain in the interpretation of the metaphor, with the consequent creation of a new perspective on the target domain.[2] There are two complementary approaches to the identification of deliberate metaphor: the semiotic approach, which focuses on textual analysis, and the behavioural approach, which investigates the processing of metaphors through think-aloud protocols, interviews or experiments (Steen 2023). Deliberate metaphor not only has triggered much theoretical discussion about the concept of "deliberateness" and its implications (Di Biase-Dyson/Egg 2020), but it has also received attention from computational models like the Web service Metaphor Magnet, which exploits Web fragments to retrieve metaphors and uses algorithms for manipulating this knowledge in order to understand and generate novel deliberate metaphors (Bolognesi/Despot 2019: 8). In essence, Deliberate Metaphor Theory brings about a shift in research focus away from the unobtrusive metaphors in everyday language foregrounded by Conceptual Metaphor Theory (Lakoff/Johnson 1980) and a refocus on deliberately created, attention-drawing

2 In Cognitive Linguistics the terms 'domain' and 'frame' refer to the same theoretical construct, i.e. a concept or knowledge system; "frames combine to form domain matrices" (Croft 2009: 14).

metaphors typical of studies before Conceptual Metaphor Theory (Di Biase-Dyson/Egg 2020: 3). However, this time metaphors are not considered to be isolated instances of creative acts aiming at embellishing literal forms of expression, but rather they serve communicative functions in discourse.

Metaphor is relevant to language learning and metaphorical competence is a core ability for L2 learners, as it can contribute to all areas of communicative competence, including grammatical, textual, illocutionary, sociolinguistic, and strategic competence (Littlemore/Low 2006). Metaphorical competence generally refers to "the comprehension, awareness, and retention of metaphor in speaking, writing, reading and/or listening" (O'Reilly/Marsen 2021: 26). Although metaphor is a common phenomenon in everyday language and an intrinsic part of thought and communication, it is still not well represented in the Common European Framework of References for Languages (CEFR) or in textbooks (MacArthur 2017: 418; Nacey 2017: 510; Ahlgren/Golden/Magnusson 2021: 197). Finding ways to develop learners' metaphorical competence is still an open question and has stimulated the classroom intervention reported in this article. In designing and implementing tasks that enhance L2 metaphorical competence, we take account of previous studies that explore the use of online lexicographic tools for this purpose. For example, in the context of teaching Spanish as a foreign language Jódar-Sánchez (2019) outlines preliminary ideas on how FrameNet and MetaNet could be used in activities that ask learners to identify metaphors in example sentences and to discover frame element mappings between source and target frames. Similarly, Campoy-Cubillo/Esbrí-Blasco (2022) present dictionary-based tasks on figurative language following a cognitive-semantic approach; their tasks focus on idioms and use online dictionaries to promote students' learning of both and understanding of metaphorical language. Against this background, we set out to explore the pedagogical potential of frame semantic resources in enhancing EFL learners' metaphorical competence by proposing a more comprehensive framework for designing tasks and by shifting the focus beyond conventionalized metaphorical uses of individual lexical items and idioms.

3 Designing frame-based tasks for raising learners' awareness of deliberate metaphor

This section aims to bridge the gap between theory and practice by proposing a flexible framework for designing contextualized tasks that raise learners' awareness of deliberate metaphor. In the proposed frame-based tasks learners' attention is explicitly drawn to metaphorical language use in natural discourse, and frame semantic resources (FrameNet and MetaNet) play a key role in their design and implementation. To illustrate the potential of these resources for metaphor instruction, Table 1 provides sample tasks

that concern both receptive and productive language use and activate different learning processes ranging from bottom-up to top-down strategies in reading and from controlled to guided to free practice in writing.

The tasks were developed and implemented in a university EFL course for first-year students majoring in English. The course aimed at developing students' EFL skills through a focus on the descriptive/narrative genre. The students' level of proficiency in English was B2+/C1 (CEFR), as measured by the Oxford Placement Test, and they were familiar with online learner's dictionaries. They did not receive prior (decontextualized) training in the use of FrameNet or MetaNet, but rather the tools were introduced in the context of the tasks at hand. The tasks were part of a series of pilot lessons that integrated Frame Semantics with Task-Based Language Teaching in order to raise learners' awareness of not only the form and meaning of metaphors but also, most importantly, their use in discourse. Presenting details about the proposed frame-inspired task-based approach to metaphor teaching and learning lies outside the scope of this paper; for an overview see previous work (Dalpanagioti 2021; 2022; 2023), which justifies the compatibility of the two models combined, points out what each model can gain from this integration, provides illustrative lesson plans, and presents preliminary findings about the effectiveness of the approach. What this paper focuses on is the central role of the frame semantic resources in this approach. This is demonstrated through the sample tasks in Table 1, which have been taken from different teaching units on topics such as life stories, film/book reviews, experiences of illness and disease, natural disasters, iconic monuments, and climate change.

Starting with the receptive tasks, they involve learners in the close deliberate study of short texts (intensive reading) and aim to stimulate 'noticing', the first cognitive process encouraging learning (Nation 2013). Tasks (a)–(d) provide extracts from web articles[3] and call learners to notice that they pivot on potentially deliberate metaphor at the levels of language, thought, and communication. Following a bottom-up procedure, in tasks (a)–(b) learners need to focus on the highlighted words in the texts and identify the frames they evoke in the particular context. There are variations on the way this can be done using FrameNet. We can ask learners either to first guess and then check their answers against frame definitions (task a) or to look up the words using FrameNet's search box and choose the most appropriate frame by comparing contextual clues to frame definitions (task b). In any case, learners become aware that words referring to physical motion or force are used metaphorically in the texts to refer to a hurricane (task a) or a movie (task b). MetaNet is then used to link the linguistic with the conceptual dimension of metaphor; once again learners may either first guess the underlying metaphor and then reinforce their answer by finding more examples in the relevant

3 The authentic L2 texts were checked for the level of proficiency they are suitable for by means of the Text Analyzer.

MetaNet entries (task a) or first read relevant metaphor entries and then relate them to the context at hand (task b). During this inductive procedure of identifying source and target frames, the teacher's role is to guide learners step by step and offer simplified information – e.g. about concepts such as 'frame' (a situation with specific participants) and 'mapping' (correspondence), the typical representation of metaphor (TARGET FRAME IS SOURCE FRAME), the components of the resources – gradually when it becomes necessary without overwhelming them with technical terms or details. At a discoursal level, learners are encouraged to notice the recurrent (and hence potentially deliberate) use of the same source frames for creating vivid images and textual cohesion.

A top-down procedure is used in tasks (c)–(d). Learners first get an overall picture of the metaphors underlying the texts at hand and consider the conceptual mappings between the elements of the source and target frames using MetaNet. Metaphor-related words are not highlighted in the texts, but rather learners are asked to trace them, thus seeing how metaphor in thought is expressed in language. What grabs learners' attention –and makes the tasks manageable– is the fact that several words in consecutive sentences activate the same source frame (person in task c and war in task d) to describe the same target frame (clock tower in task c and climate change in task d). Learners are guided to realize that the metaphor which runs through the whole text creates an effect at the level of communication; it builds an evocative image and makes the text more emotionally resonant.

Moving to productive tasks, learners get practice in retrieving metaphor-related words and phrases and gradually creating their own extended metaphors to express messages. Tasks (e)–(j) are organized along a continuum from those that involve a great deal of teacher control to those that involve more learner choice. For instance, (e)–(f) are completion activities which can serve as the first step towards bringing receptive metaphors into productive use. To find what is missing from existing, authentic texts, learners need to extend the use of a metaphor over consecutive clauses in task (e) or different parts of a longer text in task (f). Such language-focused learning activities typically provide a high degree of success to learners, who thus gain confidence in retrieving information (frame-evoking words and their usage patterns) from FrameNet and MetaNet.

Collaborative guided activities aim to bridge the gap between restricted and free, creative expression in L2 by opening up more options and search paths. For example, building on task (f), task (g) calls learners to work in pairs and use a different source frame to write a hopeful quote to inspire people who experience a chronic disease. Scaffolding takes various forms, such as interacting with peers, finding naturally-occurring texts to use as models, getting hints for metaphors, using FrameNet as a source of relevant lexical items (and corpus-derived examples) to choose from and use in context. However, as tasks become more open and student-directed, the limitations of frame semantic resources in terms of coverage become evident. For example, learners may not find MetaNet entries for metaphors they have in mind and wish to use in their text. This limitation, which is due to the ongoing nature of the project, serves as a spring-

board for designing a different type of guided activity which is illustrated by task (h). Building on task (d), which familiarized learners with the metaphor ADDRESSING SOCIAL PROBLEMS IS WAGING WAR at the textual and conceptual level, task (h) involves them in compiling an entry for another metaphor encountered in texts but not included in MetaNet.[4] Step-by-step instructions (e.g. deciding on frames, selecting authentic illustrative examples, identifying frame mappings) are provided to scaffold this inquiry-based learning activity that helps learners in how to work as writers to structure their texts on an extended metaphor.

Table 1 concludes with tasks that aim to increase the fluency with which learners can deliberately use metaphor to communicate a message. Tasks (i)–(j) involve learners in production of larger amounts of coherent text and more autonomous use of frame semantic resources. Learners may exploit conventional metaphors (task i) or employ a new perspective to revisit a conventional metaphor (task j); yet, in both cases attention is drawn to the communicative functions of deliberate metaphor such as reconceptualising a target phenomenon, highlighting/ hiding some of its aspects, and evoking feelings.

On the whole, frame semantic resources seem to be flexible tools that can be exploited in metaphor-related tasks in various ways to promote discovery learning and critical thinking. FrameNet and MetaNet have been integrated directly and explicitly, in a simple or more sophisticated manner, in a number of tasks organized along a continuum from receptive to productive and from controlled to open-ended ones. This continuum can be extended on both ends to cater for the needs and skills of different learners. At one end, in line with indirect Data-Driven Learning, teachers could use frame semantic resources implicitly to design similar (but simplified) metaphor-related tasks without asking learners to act as researchers. At the other end, tasks could become more challenging (and technical) by involving learners in more elaborate look-ups combining frame semantic resources and learner's dictionaries, onomasiological and semasiological trajectories. In an attempt to strike a balance, Table 1 has focused on integrating frame semantic resources in metaphor-related tasks that combine meaning-focused input, language-focused learning, meaning-focused output and fluency development (Nation 2013: 591).

4 Collaborative compilation of dictionary entries seems to be an emerging learning tool that can be used for promoting awareness of different aspects of language (see e.g. Caruso 2024).

Table 1: Receptive and productive metaphor-related tasks utilizing FrameNet and MetaNet.

Receptive tasks

Bottom-up

(a)

We often think of and talk about a *weather event* as a *living being* that moves under its own direction and attacks places and people.

➢ Read the following extracts from news articles about Hurricane Irma and answer the following questions.

> Hurricane Irma hit Florida after leaving a trail of destruction across the Caribbean. At least four deaths were reported in Florida after the storm's arrival on Sunday, adding to a death toll of at least 27 from its Caribbean rampage. More than three million people in Florida were without power, officials said on Sunday night. Officials along the Gulf Coast had believed they would be spared the worst of the assault until the storm's trajectory took an unfavorable westward bounce late in the week. After a Saturday spent hastily converting fortified buildings into shelters, they were hurrying the final preparations into place on Sunday. (. . .)
> (Source: https://www.nytimes.com/2017/09/10/us/irma-florida-keys-gulf-coast.html)

a) Sort the highlighted words in two groups: the [Motion] group and the [Attack] group. Read about the [Motion] frame and the [Attack] frame in **FrameNet** and check your answer against the examples.

b) The words in the two groups are used metaphorically. Choose the most appropriate name for the two metaphors:

i. ACTION IS MOTION ALONG A PATH
ii. SAD IS DOWN
iii. NATURE IS AN AGENT

(b)

We often think of and talk about the powerful *effect* of movies as *physical force*.

➢ Read the following extract from a review of one of *The Lord of the Rings* movies and answer the following questions.

> *'The Lord of the Rings: The Fellowship of the Ring': Review*
> Visually striking, thematically grave, and morally weighty, Peter Jackson's *The Lord of the Rings: The Fellowship of the Ring*, is a miracle of a movie: a three-hour fantasy-action-adventure that not only faithfully captures the spirit of its respectable source material, the first in J.R.R. Tolkien's trilogy of books, but also stands tall on its own merits as one of most ambitious movies to have come out of Hollywood in a long time. Eagerly awaited by millions of fans around the globe, New Line's large-budget (more than $90m) fantasy is a must-see event movie, whose literary and cinematic qualities guarantee a strong theatrical touch in every territory, easily crossing age and national boundaries, before becoming a cult classic, subject to repeat viewing by the book's most ardent devotees.
> Though necessary, the prologue, in which the history of the Ring is recounted in voice-over, is rather weak and overly long. However, as soon as the narrative proper begins, the yarn grabs the viewers with the riveting force of a mythic tale, seldom losing its grip even in its feeble moments.
> (Source: https://www.screendaily.com/reviews/the-lord-of-the-rings-the-fellowship-of-the-ring-review/407695.article)

a) Look up the underlined words in **FrameNet**. What frame is activated by each word?

iv. SOCIETY IS A PERSON
v. EMOTION IS A FORCE

Read more examples of these metaphors in **MetaNet**.

c) Why are metaphors used in news articles?

b) What do these frames have in common?

c) Read the metaphors for control in **MetaNet**. Which ones best fit the text?

Top-down

(c)

We often think of and talk about *artifacts* (e.g. buildings, machines) as *living beings*.

➢ Read the text about Big Ben and answer the following questions.

Big Ben: A handsome London monument

I'm called Big Ben, and I'm one of the most handsome buildings in one of the greatest cities in the world. You might think I'm bragging –and I suppose I am– but I hope you'll indulge an old man. I'm 157 years old, after all. Perhaps that's not all that old as buildings go, but during my lifetime, I've certainly seen a lot happen on the streets of my city, often right at my feet. I've lived through some of London's most glorious times and some of its most terrible. But through it all, like the true Londoner that I am, I've stood tall, kept calm, and carried on.

(. . .)

Even if, as Churchill said, our conduct during World War II was our finest hour, there have been many times since then that have made me puff out my chest. For 157 years, I've seen her at her best and at her worst, and I plan to stand here watching over her for many more years to come!

(Source: https://curiousrambler.com/big-ben-a-handsome-london-monument)

a) Read about the MACHINES ARE PEOPLE metaphor in **MetaNet**. What do the machine, its hardware, software and functioning resemble?

(d)

When we think of and talk about a *social problem*, we often use words that have a connection with *war*.

➢ Read the following extract from a news article and answer the following questions.

A World at War

We're under attack from climate change – and our only hope is to mobilize like we did in WWII.

In the North this summer, a devastating offensive is underway. Enemy forces have seized huge swaths of territory; with each passing week, another 22,000 square miles of Arctic ice disappears. Experts dispatched to the battlefield in July saw little cause for hope, especially since this siege is one of the oldest fronts in the war. "In 30 years, the area has shrunk approximately by half," said a scientist who examined the onslaught. "There doesn't seem anything able to stop this."

(. . .)

World War III is well and truly underway. And we are losing.

It's not that global warming is like a world war. It is a world war. And we are losing. The question is, will we fight back? And if we do, can we actually defeat an enemy as powerful and inexorable as the laws of physics?

(Source: https://newrepublic.com/article/135684/declare-war-climate-change-mobilize-wwii)

a) Read about the ADDRESSING SOCIAL PROBLEMS IS WAGING WAR metaphor in **MetaNet**. What do global warming, physics, firestorms, droughts, floods, and mosquitoes resemble?

(continued)

Table 1 (continued)

Receptive tasks		
	b) Find words in the text that are used metaphorically to create the impression that the clock is a person. Use **MetaNet**'s mappings to group the words together according to the information they convey. c) Is personification used sparingly in the text or does it extend over the whole description? What is the effect created?	b) Find words in the text that are used metaphorically to create the impression that climate change is a war. Use **FrameNet** to group the words together according to their meaning. c) Is war imagery used sparingly in the text or does it extend over the whole description of the situation? What is the effect created?
Productive tasks		
Controlled	**(e)** **Matching and completing** Here are some comments posted by movie critics. Each critic uses a different frame metaphorically to express his/her view. Match each text with a frame and complete it with the missing word. Justify your answer using **FrameNet**.	**(f)** **Gap filling** Read the text about a patient's experience with *cancer* and complete the gaps with words that have a connection with *war*. Use words from **MetaNet** (https://metaphor.icsi.berkeley.edu/pub/en/index.php/Frame:War) in the correct form.

Reviews / **Frames**

a) *Far From The Madding Crowd*
It's a title to be admired, certainly, but for all its visual fireworks, *Far From The Madding Crowd* doesn't truly _____ an emotional spark.
– [Attaching] *tie*

b) *The Discovery*
While the movie overdoes the plot twists and existential musings, *The Discovery* is a diverting head-trip whose reach far exceeds its _____.
– [Building] *build*

c) *Capernaum*
If it doesn't _____ many (or any) of these thematic strands with a neat bow, that's in the nature of a film that chooses raw dramatic power over narrative finesse.
– [Manipulation] *grasp*

War as a metaphor for cancer can be relieved of duty

Popular culture has long used war as a metaphor to describe the human experience of cancer. We are attacked by an (1) *enemy* (cancer) and expected to fight with the help of generals (doctors) and (2) _____ (other medical personnel) who counterattack with an arsenal of (3) _____.

I don't think so. Cancer begins with a single mistake within our bodies; so why would I want to declare (4) _____ on myself?

Yet everywhere we turn, we're told to keep up the fight until the (5) _____ is won, as if we can control the outcome. Like all good (6) _____, we're expected to take up arms, put up our shields and become strong, brave (7) _____, if not for ourselves, at least for our families and friends. And of course we're told never to surrender.

If my cause of death is ultimately cancer, I've already told my husband that my obituary better not say, "After a long and valiant fight, Betsy lost her

	d) *Color Out of Space* A cheerfully lurid mess that goes goofily off the rails after a slow _____, and will offer few surprises for adepts of lovecraft or of screen schlock. (Source: https://www.metacritic.com)	– [Setting_fire] *ignite*

(8) _____ with cancer." It would really frost me if my life were defined by some sort of military campaign and my death implied that cancer had (9) _____ me.

The fact is, I never, not once, (10) _____ against cancer. Rather, I made a series of choices with the hope of extending my life. I often describe my cancer as a roller coaster with a series of twists and turns and ups and downs. Some have described their experience as a journey. Others have called it a match, a competition, a rough sail, a marathon, even a dance.
(Source: https://www.rogelcancercenter.org/living-with-cancer/sharing-hope/war-metaphor-cancer-can-be-relieved-duty)

Guided

(g)
Sentence/short text writing
Work in pairs and write a hopeful quote to inspire people who experience a chronic disease (such as cancer, heart disease, diabetes, arthritis, asthma). Work in the following way:
- Have a quick look at a website with hopeful quotes: https://www.rogelcancercenter.org/living-with-cancer/sharing-hope/hopeful-quotes. Notice the length of the quotes and the metaphorical language used.
- Decide on the metaphor you will use. To get some ideas, read the last paragraph of the previous text once again. Tip: use **FrameNet** to find words/phrases related to competition, motion, etc. to help you write your hopeful quote.

(h)
Compiling a metaphor entry
Work in pairs and prepare a **MetaNet** entry for a metaphor about climate change. Work in the following way:
- Read the **MetaNet** entry for the metaphor addressing social problems is waging war, which extends over the text "A World at War" we have already discussed. Notice the types of information included in the entry.
- Search the Internet to find out how climate change is metaphorically described in another news article (e.g. https://amp.theguardian.com/environment/2021/jun/30/climate-crisis-crime-fossil-fuels-environment).
- Create your MetaNet entry by including:
  a) Source and Target frames
  b) Example sentences from the text illustrating the metaphor
  c) Mappings (correspondences between the Source and Target frames)

(continued)

Table 1 (continued)

Productive tasks		
Free	**(i)** **Reporting an experience** Work in groups and search information on the Internet about the 2004 Indian Ocean tsunami. Consider news reports and survivors' stories. Prepare a 10-minute report to present in class. Self-assessment criteria: – Did you notice that, like a hurricane, a tsunami is described as a living being that moves under its own direction and attacks places and people? – Did you use words from the [Motion] frame, the [Attack] frame and the [Cause_harm] frame in your report? Check **FrameNet**! – Do you think that your report is based on a metaphor? Can you find it in **MetaNet**?	**(j)** **Co-constructing a metaphor menu** Present your own alternative to the war metaphor for describing climate change. Instructions: – Work in groups. – Describe an aspect of climate change in a short news article (300–350 words). – Build your text on a metaphor. Use **FrameNet** to elaborate on the image you wish to create. – Prepare yourselves to present your text and to explain your metaphor in class. Well done! You have created a 'Metaphor Menu' for climate change that might help people understand, feel, evaluate and respond to this multi-faceted global issue.

4 Classroom implementation: Learning outcomes and perceptions

4.1 Learning outcomes: productive metaphorical competence

Teaching materials designed along these lines are expected to enhance learners' metaphorical competence. In order to investigate the learners' perspective in practice, we focus on one aspect of metaphorical competence, productive metaphorical competence, and investigate the use of potentially deliberate metaphor in learners' essays. In the context of the university EFL course described in section 3, we collected students' descriptive/narrative essays on the same topic at the end of two different semesters; one group of 20 students had received prior frame-aided instruction through the activities discussed in section 3, while the other group (of 20 students) had not. A corpus was thus compiled, consisting of 40 student texts written as an in-class exam, with no access to any kind of dictionary, in response to the prompt: "Write a story including the following words: *The once bustling city was eerily still and dark*. Give your story a title".

The tool used for identifying potentially deliberate metaphor in this learner corpus is the Deliberate Metaphor Identification Procedure (DMIP), a method for the systematic and reliable analysis of deliberate metaphor in language data (Reijnierse et al. 2018). DMIP is built on MIPVU (Metaphor Identification Procedure Vrije Universiteit), which is a step-by-step protocol for identifying metaphor-related words (MRWs) in discourse (Steen et al. 2010). In brief, the MIPVU-protocol requires the analyst to work in the following way: (1) to read the text to get a general understanding of the meaning; (2) to determine the lexical units (LUs) in the text;[5] (3) to establish contextual meaning for each LU; to establish a more basic contemporary meaning for each LU; to decide whether the contextual meaning is sufficiently distinct from and has some form of similarity to the basic meaning;[6] (4) if the response is affirmative, the LU is marked as metaphorical (MRW), and more precisely as "indirect" metaphor. The MIPVU-protocol differentiates "indirect" metaphor from "direct" metaphor. In the former case, the indirect use of a word "may potentially be explained by some form of cross-domain mapping from a more basic meaning of that word", while in the latter case "an underlying cross-domain mapping is triggered through 'direct' language use, where there is no contrast between the basic and contextual senses" but there is often an explicit signal (metaphor flag) such as *like*, *as*, *seem*, etc. (Steen et al. 2010: 25–26). After MRWs are identified by applying MIPVU, DMIP sets out to determine the communicative value of each MRW as either

5 The lexical unit (LU) is the unit of analysis in MIPVU and does not always correspond to the orthographic word; this is the case, for instance, for phrasal verbs and multiword expressions (see Steen et al. 2010: 26–32).

6 MIPVU prescribes the use of specific English learner's dictionaries for determining LUs and establishing contextual and basic meanings. LDOCE was used in the present study.

deliberate or non-deliberate cross-domain comparison by posing the question "Is the source domain of the MRW part of the referential meaning of the utterance in which the MRW is used?" If the answer is affirmative, the MRW is coded as potentially deliberate (Reijnierse et al. 2018: 136–137). The presence of the source domain in the referential meaning of an utterance can be determined by looking for co-textual cues that point, for example, to a direct metaphor, a novel (indirect) metaphor, an extended metaphor or a recurrent metaphor (Reijnierse et al. 2020). These types of potentially deliberate metaphor are discussed in this section in relation to extracts from the student texts provided in Table 2.

Table 2 aims to show the differences between the student texts produced without prior frame-aided instruction (ST1–20) and those produced with prior frame-aided instruction (ST21–40). It presents the properties of each individual text because the focus of the analysis is qualitative. Yet, what is striking from a quantitative perspective is the difference in the overall amount of metaphor (and potentially deliberate metaphor in particular) used in the two groups of student texts. Metaphor density – calculated as "the number of metaphors per total number of lexical units in the sample" (Nacey et al. 2019: 43) – is significantly higher in the second group of texts than in the first one.[7] Similarly, the number of potentially deliberate MRWs is considerably higher in the second group of texts; more precisely, out of 507 MRWs in ST21–40, 190 were identified as potentially deliberate (37.4%), whereas out of 269 MRWs in ST1–20, 37 were identified as potentially deliberate (13.7%). From a qualitative perspective, it is important to spot the differences in the types of potentially deliberate MRWs found in the two groups of texts. These are illustrated by means of sample extracts from each student text, where only potentially deliberate MRWs are marked using the following codes: indirect metaphor; direct metaphor; metaphor flag.[8]

The metaphor type observed most frequently in both groups of texts is the use of similes signalled by a metaphor flag (e.g. *like*, *as if*, *as*, *resemble*, *call*, *seem*). These are instances of direct metaphor; they form a deviation from the topic under discussion (most of the times, description of a city) and explicitly instruct the recipient to set up a cross-domain comparison between the referents of the words in the text. Because of the

7 In the first group of student texts (ST1–20) the average metaphor density is 3.2%, ranging from a minimum of 1.2% to a maximum of 4.2%, with a standard deviation of 0.79%. In the second group of texts (ST21–40) the average metaphor density is 6.7%, ranging from 3.2% to 13.5%, with a standard deviation of 2.3%. If we compare these metaphor densities to figures reported in previous research for L1 English texts of similar genre – e.g. Steen et al. (2010: 195) report metaphor densities of 10.8% for fiction and 15.3% for news in the British National Corpus) – we realize the importance of metaphor-related instruction.

8 In this small-scale study metaphor codings were provided by only one researcher, who is however a certified participant of the VU winter school *Finding Metaphors – The Pragglejaz Experience*.

sudden (and signalled) introduction of referents from an external source domain (e.g. rainbow, horror movie, hell, hive), these metaphors stand out as metaphors and can be seen as manifestations of potentially deliberate metaphor in language use. Following MIPVU (Steen et al. 2010: 57), all content words that are part of a topically incongruous stretch of text are marked as direct MRWs. We can thus notice that the source domain is used more elaborately in the second group of texts; for instance, this is evident when we compare the isolated references to a horror movie in ST4 and ST5 to the horror movie scenarios created in ST21 and ST29. An interesting case of direct metaphor is found in ST34, where an earthquake is referred to as a monster, but the topic shift (and cross-domain mapping) is not signalled with a metaphor flag.

While in the first group of texts potentially deliberate MRWs are almost exclusively direct metaphors, in the second one a number of indirect metaphors are also identified. In indirect metaphor a cross-domain mapping is not triggered through direct language use but through a contrast between the contextual and a more basic meaning of a word (Steen et al. 2010). In some cases, the contextual (target domain) meaning is not available in dictionaries and the MRWs are considered novel, and hence potentially deliberate, since they introduce a new perspective to the target domain. Consider, for example, *hive*, *bee*, *stinger* in ST31, ST37 and ST40; their contextual meaning (about citizens) is not conventionalised in dictionaries, yet is sufficiently distinct from their basic meaning (about bees) and the two meanings are related by comparison (i.e. we understand human behaviour in terms of bee behaviour). In most cases, however, there is a conventionalised target-domain meaning available in dictionaries, and the reason why indirect MRWs are considered potentially deliberate is that they form part of an extended metaphor; consider, for instance, the first sentence in ST32 and ST35, where the same source-target domain mapping stretches over two or more consecutive clauses. When words relating to the same source domain appear in different parts of the text (not necessarily consecutive clauses), there is a recurrent metaphor (Reijnierse et al. 2020: 30). This type of potentially deliberate metaphor is found only in the second group of texts (e.g. ST27, ST31, ST32, ST35, ST37, ST40).

On the whole, despite individual variations, there is a clear difference between the two groups of student texts. The use of potentially deliberate metaphor is both quantitatively and qualitatively restricted in the essays produced without prior frame-aided instruction. By contrast, the essays produced by the students who had attended the intervention programme exhibit a variety of potentially deliberate metaphors that make the description more vivid, grab the reader's attention and create textual cohesion. This is often evident even in the title of the text; consider, for example, the titles: "A journey like a movie" in ST21, "The invisible enemy" in ST32, "Europe's dead hive" in ST40. In half of the essays the title underscores the intentional nature of the comparisons and the deliberate use of metaphor as a discursive framework, providing more convincing evidence of learners' increased metaphorical competence.

Table 2: Potentially deliberate metaphor use in learners' essays.

Student Text	Number of LUs	Number of MRWs	Number of potentially deliberate MRWs	Sample extracts
Without prior frame-aided instruction				
ST1–20	8,330	269	37	
ST1	385	14	3	Our only option was to evacuate as soon as possible. It felt like a fever dream. [. . .] The buildings were not painted only with white and yellow, but also with light blue, pink, lilac and green. The city was similar to a rainbow in that matter.
ST2	412	13	0	–
ST3	365	9	0	–
ST4	453	16	6	People would go out every morning to shop, there were kids running and playing everywhere, families were taking long walks [. . .] It almost felt like a dream. [. . .] Idle halls, dead plants, dirty walls, cold and dark rooms. She felt as if she were a part of a horror movie.
ST5	427	15	6	From cold and cozy winters to warm and playful summers, everything seemed to have come out of an adventurous storybook. [. . .] The once dreamy factory looked like it had come out of a horror movie.
ST6	404	5	0	–
ST7	385	13	1	This mistrust between citizens led to grumpiness and rudeness being spread all over, like some kind of pandemic.
ST8	432	18	6	The view was spectacular! It was like the sun was trying to fill the city with its warm light. There were so many colours and voices.
ST9	426	15	0	–
ST10	510	11	2	He could not control his grip power or the way the objects he touched stuck to him, as if they had glue.

ST11	384	8	1	We knew how difficult and expensive of course it was to begin a new life, to turn this chaos into a, once again, colourful and beautiful painting, but we had to.
ST12	350	12	1	How did I manage to escape? I will be stereotypical and call it a miracle.
ST13	384	14	4	Welcome to “Capitalia”, a once busy bee that transformed into a couch potato in a couple of days.
ST14	407	15	5	Soon some tents were brought to our island for those who had lost their homes completely. We were all feeling like we were in the middle of the ocean and our boat had crashed.
ST15	444	16	0	–
ST16	450	19	0	–
ST17	267	7	0	–
ST18	452	11	2	While everyone was asleep, the human-like entities managed to steal the diamond.
ST19	530	20	0	–
ST20	463	18	0	–
With prior frame-aided instruction				
ST21–40	7,531	507	190	
ST21	350	23	11	I started thinking like I really was in a horror movie and I should act like the protagonist without fear. [. .] As that noise was coming closer and closer, I was thinking that, this was the time in horror movies that the protagonist was going to die.
ST22	413	25	6	There was once a beautiful, almost majestic city. It was called the city of light. [. . .] The factory was known to the people as the black sheep of the town.
ST23	430	19	3	Many cars were running through the opposite lane as if they had seen a ghost. [. . .] Many houses and public places were abandoned, which made the city look like a ghost town.
ST24	312	16	0	–

(continued)

Table 2 (continued)

Student Text	Number of LUs	Number of MRWs	Number of potentially deliberate MRWs	Sample extracts
ST25	347	11	7	They kept looking to find other people outside but they couldn't. "The earth seems to have swallowed them up" John said. "Like a black hole" Maria added.
ST26	474	28	13	The tsunami was bigger and stronger than they could have ever imagined. [. . .] It was almost like a giant was running back and forth in the city filling it with water and destroying it.
ST27	394	35	13	The place resembled hell more than earth. [. . .] It all felt like a punishment to those who survived. [. . .] To Bill, it felt like traveling to Ades. [. . .] He decided to write a book about war's ability to bring hell to earth in order to keep the memory of his city alive and to prevent this from happening again.
ST28	518	31	11	After almost a year of hiding and being scared, freedom was like a huge weight had been lifted off our shoulders.
ST29	341	27	15	But now the big city is creepy and dark. It looks like a horror film, expecting the bad guy to appear from the corner with a knife or a gun, threatening to kill. [. . .] This darkness makes you feel like you are in a haunted house, but with a slight difference. This is a city! You could easily imagine yourself starring in the horror movie in the city.
ST30	337	12	1	Happy voices and a lot of laughter were considered the "signature" of this specific city.
ST31	319	25	4	Amongst this buzzing crowd, two friends were heading to their work, vividly chatting and laughing. [. . .] Its residents had abandoned it for their own safety, but hoped they would soon return to give its life back. But for the moment, the once lively hive was violently silenced by the uncontrollable power of nature and its bees could not do anything to save it.
ST32	442	27	15	We were informed by our parents that a war broke out, not the usual one, with bombs and guns, but a new one, an invisible war, which was able to take everything from you yet in a different way. [. . .] Who would have thought that we would have been kept at home almost like a prison and have to get permission in order to get out for a stroll? [. . .] Doctors and nurses were our warriors trying to do anything to reduce the risks and dangers, but how can people fight an invisible enemy?

ST33	334	25	12	It [the city] was like a hive full of bees that was brutally destroyed by the rage of the weather. [. .] They were forced to vacate the city in order to avoid another deadly tsunami that could eat them alive like a huge hungry shark that hasn't eaten for days.
ST34	291	21	14	A disastrous earthquake happened and it was the biggest of the past few decades. The huge monster came one night and took down all the buildings and the houses, killing so many people and injuring other.
ST35	381	18	8	She [the city] was now a living ghost, an unfamiliar figure with no heart. [. . .] In a matter of months this hurt city is going to welcome her old lively self back.
ST36	321	31	12	The future of that winter seemed uncertain, like a shadow cast overhead. [. . .] A powder of fear and mistrust had fallen over the city and covered every roof. [. . .] It was a phantom of a city.
ST37	420	57	21	It was a hive for all young adults, and their buzzing was heard all throughout the country. Such popularity only brought devastation, sadly. Its citizens had a stinger of their own, leading to the highest crime rate across the country. [. . .] The city was in ruins, destroyed and deserted, similarly to the biblical cities of Sodom and Gomorrah. [. . .] We could feel the spirit of the city still lurking around us, as if guiding us through its graveyard. The bright, green parks had turned an ashy grey, needles scattered all around like tombstones. It was now clear to us the citizens had caused their own downfall, the drugs and crime digging their graves.
ST38	380	30	6	So she at last stood up and started walking towards her old enemy, though once best friend, the mirror. [. . .] That mirror represented a portal of time traveling and her so resentful past, full of mistakes and all the wrong moves.
ST39	403	24	4	Nowadays Blackville is considered a dead town. [. . .] It resembled a crime scene.
ST40	324	22	14	Famagusta's hive was constantly buzzing, full of working bees, who stayed in the city during the year, and "tourist" bees, who would visit occasionally to admire Famagusta's beauty. [. . .] The predators killed, tortured, raped and took captive lots of bees who either fought against them or just tried to flee. [. . .] Today, lots of bees dream to return to their homes in Famagusta and resume their lives, but they cannot.

4.2 Learners' perceptions

At the end of the course, the students who attended the frame-aided instruction were engaged in a follow-up focus group, where they shared their views about the metaphor-related tasks and the resources used. The students were split in four groups and each focus group session was conducted online via Zoom and lasted approximately 30 minutes. The discussion was structured in three parts: (a) awareness of the elements of a successful description/narrative, (b) preferences of tasks, and (c) reflections upon the use of FrameNet and MetaNet (advantages, disadvantages, suggestions).

In the first part of the discussion, the elements of a successful description/narrative that learners mentioned most frequently were narrative structure, wide variety of collocations and appropriate tenses, while they made special reference to the use of metaphor to connect diverse images, create a vivid effect and add coherence to their text. In the second part of the discussion, the students agreed that they liked most the tasks that involved them in pair or group work with a view to producing a text on an interesting topic (e.g. see tasks g and i in Table 1). On the other hand, they could not agree on a task that they particularly disliked, but some of them (7/20) reported not feeling comfortable with the attention to metalinguistic and metalexicographic knowledge in tasks like (h) in Table 1.

The third part of the discussion revealed learners' perceptions of the lexicographic resources they were introduced to. As expected, they reported that it was easier for them to use FrameNet and MetaNet in receptive rather than productive tasks. That is why tasks that worked well in all pilot lessons were those in which students used FrameNet to identify the frames evoked by several items in an authentic text and MetaNet to understand the metaphor that runs through the whole text (e.g. see tasks a–d in Table 1). Similarly, they enjoyed matching activities (like task e), while they sometimes struggled with gap-filling activities (like task f) because they felt the need to consult conventional dictionaries in addition to the frame semantic tools in order to find definitions and collocations. What was even more difficult for students was the more autonomous use of these tools in activities that involved them in production (e.g. see tasks g–j), but at the same time this is what they felt was really new and useful for improving their language skills. By way of illustration, some comments pointing out the usefulness of the resources to them are reproduced "as is" below.

- FrameNet helps us get ideas about the situation we wish to describe and find more relevant words.
- FrameNet categorizes, colours, structures the lesson and our thought process.
- I used FrameNet in a poetry course to understand the connection between two elements.
- MetaNet clarifies metaphor; I would use it outside classroom to organize my thoughts.
- MetaNet gives us food for thought; it can help us understand hidden meanings in texts and create new metaphors in our texts.

However, disadvantages were also reported and mainly concern difficulties in navigation and limited content. More precisely, they found the structure of the websites complicated, they could not always find the lexical items they needed in FrameNet, and they felt that it was not easy to work with MetaNet because there are few examples. Based on their (limited) experience with FrameNet and MetaNet, the students made some suggestions for their improvement as learning tools. Their suggestions point to the following considerations:

- creating a simplified learner-friendly interface (e.g. with instructions for users and tutorial videos)
- adding more content (e.g. more lexical items in FrameNet, more metaphors and usage examples in MetaNet)
- linking frame-semantic resources with conventional dictionaries (e.g. hyperlinks to English learner's dictionaries, and in particular the definitions, collocation boxes and usage examples)
- giving learners the opportunity to add their own entries to these resources (thus promoting learner involvement and autonomy).

On the whole, as a qualitative research tool, focus groups provide the opportunity to gather a variety of experiences and gain a better understanding of learners' attitudes. Enthusiastic voices were heard underlining the potential for teamwork, creativity, diversity and critical thinking, but some conservative responses were also expressed as a result of being overwhelmed by metaphor or the tools they were unfamiliar with. In any case, all students agreed that they became aware of a creative linguistic resource (deliberate metaphor) and two lexicographic resources (FrameNet and MetaNet), which they could use according to their own needs and desires.

5 Conclusion

The aim of this article was to integrate theoretical insights from metaphor research and relevant lexicographic resources into EFL teaching and learning. A number of frame-based tasks were presented along a continuum from receptive to productive and from controlled to open-ended ones in order to demonstrate how frame semantic resources (FrameNet and MetaNet) can be used for enhancing EFL learners' metaphorical competence. The tasks were implemented in a university EFL course in order to investigate their effectiveness. Findings were discussed based on (a) the comparative analysis of metaphor use in learners' essays produced with and without prior frame-aided instruction, and (b) the examination of learners' perceptions through focus groups. Both learners' performance in metaphor production and their attitudes provided overall positive feedback about frame-aided instruction.

This exploratory study can serve as a starting point for generating and implementing frame-based teaching materials for metaphor-related or other purposes. However, in designing tasks using FrameNet and MetaNet, a difficulty which is expected to be encountered is related to the coverage of these frame semantic tools. Both FrameNet and MetaNet are ongoing projects and, since there is yet no complete inventory of frames, frame-evoking lexical units, realization patterns, frame relations, metaphors, source-target frame mappings, examples, etc., we may not find all the information we need for a communicative task-based lesson. Furthermore, since these lexicographic tools are not primarily designed for foreign language teaching, they do not organize information in terms of criteria useful to lesson planning (e.g. level of proficiency, frequency).

Despite these limitations, the tasks presented in this study show that frame semantic resources are flexible tools that can be exploited in various ways to develop language awareness along with dictionary skills. Taking account of advanced learners' needs, we integrated FrameNet and MetaNet directly and explicitly in metaphor-related tasks promoting discovery learning and critical thinking. However, these online encyclopedic repositories of knowledge could also be used implicitly by teachers to inform their instructional practices and decisions without asking learners to act as researchers. Viewing frame-aided instruction in terms of a continuum, teachers could adapt the use of frame semantic resources to the level and needs of their students and plan the necessary scaffolding for learning. To reinforce the pedagogical potential of these resources, future research could explore ways of making them more accessible and attractive to both teachers and learners. For example, frame-evoking items could be linked to words and phrases in CEFR-informed reference sources like the English Vocabulary Profile, simplified versions of the original frame semantic resources could be created (e.g. similarly to the G-FOL project for learners of German), and a bank of tasks could be linked to frames and metaphors.

Data availability: Data will be made available on request.

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