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Conceptual Metaphors to Foster Students' Vocabulary Learning Outcomes in English for Business Purposes

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ABSTRACT

Background: Metaphors are found to have positive impacts on vocabulary teaching and learning. However, further investigations into the existing literature disclosed a lack of thorough research regarding the utilization of conceptual metaphors in teaching business vocabulary. In addition, while these studies have shed light on the impact of orientational metaphors in teaching vocabulary, there remains a lack of consensus concerning the effects of teaching vocabulary through structural metaphors or ontological metaphors.

Purpose: To examine the effectiveness of utilizing the Conceptual Metaphor Theory (CMT) in teaching English vocabulary for business purposes to enhance students' vocabulary learning outcomes, including vocabulary acquisition, retention, and lexical inference.

Method: A quasi-experimental study was designed and conducted over a duration of 10 weeks with the participation of 58 second-year students specializing in International Business. The participants were randomly and equitably allocated to the experimental group, which utilized the CMT-based teaching method, and the Control group, which employed traditional teaching methods. The data were collected via a pre-test, immediate post-test, and delayed post-test, thereafter, analyzed using IBM SPSS software version 26.0.

Results: While the pre-test scores exhibited their homogeneity in their English proficiency before the experiment, the students in the experimental group achieve a mean score of 7.662; 1.228; and 7.429, surpassing the control group's mean score of 6.710; 0.510; and 6.476 regarding the results gained in the overall Immediate post-test, Inference questions, and Delayed post-test respectively.

Conclusion: CMT-based teaching approach significantly enhances students' vocabulary learning outcomes, including vocabulary acquisition, lexical inference, and vocabulary retention. The current study contributes to the literature relating to vocabulary instructional approach. The study indicates that instructors can facilitate business vocabulary learning by explicitly emphasizing the conceptual frameworks that support key lexical elements. Furthermore, the findings suggest that future classroom applications may be improved by integrating metaphor education into case studies, presentations, and real-world business situations, enabling students to utilize metaphors in contextually relevant manners. These pedagogical insights can assist educators in designing more cognitively engaging evidence-based practice programs that promote long-term vocabulary growth.

KEYWORDS

Conceptual metaphor; CMT-based instructional approach; Business English; Business vocabulary; Vocabulary learning outcomes

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INTRODUCTION

Enhancing the quality of higher education (HE) is essential for attaining the United Nations Sustainable Development Goals since HE significantly con-

tributes to personal, social, and economic growth worldwide (Nguyen et al., 2024). In recent decades, there has been a significant increase in English-medium instruction (EMI) programs and courses worldwide, utilizing English as the me-



dium for academic content delivery (Kirkpatrick, 2017). In a comparable setting, EMI has experienced significant expansion as a strategy for the internationalization of HE in Vietnam. The government has developed and executed several projects and policies that have successfully mandated EMI adoption by Vietnamese HE institutions (Tri & Moskovsky, 2019). English proficiency is a must for students seeking direct enrollment into EMI courses/programs. Students must attain at least level 4 (B2) on the CEFR for Vietnam to meet the requirements of the EMI program.

It is widely acknowledged that vocabulary is a fundamental part of second language teaching and learning (Hua, 2020; Kalay & Keçik, 2023; Lee et al., 2022; Nation, 2013; Schmitt, 2007; Zafirovska & Xhaferi, 2022) and the lexicon may be the most vital component of language for learners (Al-Khasawneh, 2019; Shi, 2025). This is attributable to the fact that the acquisition of language is associated with the acquisition of world knowledge (Masrai et al., 2021), helps learners deliver messages meaningfully (Jiang & Zhao, 2025) and enhances their listening, speaking, writing, and reading skills (Dabbagh & Janebi Enayat, 2017; Janebi Enayat & Derakhshan, 2021; Liu et al. 2025). Particularly, the acquisition and retention of specialized terminology is a crucial skill to be cultivated in the study of languages for specific purposes (Smirnova et al., 2021). Similarly, acquiring ESP vocabulary is crucial as it allows certain English as a foreign language (EFL) students to learn and utilize appropriate terminology for their respective disciplines, hence substantially reducing the likelihood of errors, misunderstandings, and misinterpretations (Zafirovska & Xhaferi, 2022). Proficiency in specialized subject vocabulary significantly influences academic performance in EMI courses, independent of general and academic vocabulary knowledge (Gocić et al., 2023; Masrai et al., 2021; Wei & Macaro, 2024). However, the acquisition and retention of vocabulary is a challenging endeavor, and insufficient vocabulary may hinder academic advancement and the ability to participate in natural conversations (Alnan & Halim, 2024).

Vocabulary teaching and learning are fundamental components of second language acquisition (Gocić et al., 2023; Nation, 2013; Schmitt, 2007). In many cases, vocabulary acquisition relies not solely on the strategies employed by learners (Chung et al., 2025), but also on the instructional approaches utilized by educators (Akramy, 2022). Specialized vocabulary warrants greater emphasis in teaching (Masrai et al., 2021) since insufficient vocabulary knowledge is a significant barrier to language acquisition (Kalay & Keçik, 2023). It is teachers who are capable of delivering effective and useful instructions to students, hence enhancing their vocabulary for learning EMI courses/programs (Akramy, 2022). Conceptual metaphorization is a vital means in creating new business terms. A great number of business words and expressions are metaphorical (Hanh, 2024a, 2024b; Khevichai, 2015). Therefore, teaching business vocabulary in EMI courses by means of conceptual metaphors can be an

effective pedagogical technique helping students improve their vocabulary learning outcomes.

A critical review of previous studies demonstrates that, to some extent, metaphors are found to have positive impacts on vocabulary teaching and learning. While some studies have shed light on the impact of orientational metaphors in teaching vocabulary, there remains a lack of consensus concerning the effects of teaching business vocabulary through structural metaphors or ontological metaphors. This study, therefore, aims to bridge the identified gaps in the literature and provide insights into the CMT-based approach for teaching business English vocabulary. This research figures out the impact of the CMT-based approach in teaching business vocabulary on students' vocabulary learning outcomes, namely vocabulary acquisition, retention and lexical inference. This study's findings empirically support the incorporation of the CMT into English for Specific Purposes (ESP) instruction, providing a framework for ESP curriculum development. In order to fulfill the aim of the study, the following three research questions are addressed:

- RQ1: Does CMT-based teaching approach improve business vocabulary acquisition in EFL learners?
- RQ2: Does CMT-based teaching approach improve business lexical inference in EFL learners?
- RQ3: Does CMT-based teaching approach improve long-term retention of business vocabulary in EFL learners?

LITERATURE REVIEW

Approaches to Teaching Vocabulary

A wide variety of approaches have been employed for teaching general and specialized vocabulary, encompassing *traditional approaches* (e.g., the reading method, translation method, grammar-translation method, situation method), *communicative approaches* (e.g., contextual learning, situational teaching, lexical approach, content-based instruction, task-based learning), *technology-based approaches* (e.g., flashcards, vocabulary games, computer-assisted vocabulary learning), as well as *explicit instructional approaches* (e.g., semantic word maps, word families, and content and language integrated learning). However, it is difficult to ascertain the most effective pedagogical approaches because numerous factors affect vocabulary learning outcomes (Wu et al., 2024).

In response to the modifications that facilitate the transformation of the boredom of traditional vocabulary acquisition methods into an engaging and dynamic learning experience, researchers have attempted to investigate innovative and effective approaches to teaching vocabulary. First and foremost, numerous studies have been carried out on the use of digital game-based learning applications or platforms such as Quizlet, Kahoot, Instagram, YouTube, ChatGPT, etc. in

teaching vocabulary. These technology-assisted approaches can boost vocabulary learning achievement (Enayat et al., 2025; Liu et al. 2025; Rasti-Behbahani, 2021; Shahiwala & Rahul, 2025), improve English vocabulary acquisition (Huong & Chi, 2023), optimize vocabulary retention (Mariappan, 2025), enhance vocabulary learning engagement, self-confidence (Medina & Hurtado, 2017; Li, 2021) improve learners' motivation, growth mindfulness, enjoyment, and willingness to communicate (Jiang & Zhao, 2025). In addition, teaching vocabulary by means of multimodal inputs such as text, image, audio, visual aids, flashcards is claimed to be powerful (Akramy et al. 2022; Apriliyani, 2021; Han, 2025; Zarrati et al., 2024). When comparing the effects of Lexical, Etymological, and Multimodal approaches on improving EFL students' acquisition of idiomatic expressions, Alnujaidi's (2025) study indicates that the Multimodal approach is highly effective for developing idiomatic competence. Investigating the Frame Semantics approach for teaching specialized terminology, Smirnova et al. (2021) indicate that Frame Semantics approach in teaching and learning vocabulary helps to connect lexical units to cognitive structures, so enhancing vocabulary acquisition and retention. Additionally, Shi (2025) claims that applying systematic analytical thinking in vocabulary teaching can help students to boost their vocabulary retention.

Literature also reveals that both empirical and review studies have been undertaken to examine the application of cognitive approaches, especially conceptual metaphors in teaching vocabulary. An increasing number of researchers (Bennett, 2022; Çelik, 2021; Chung & Newton, 2025, to name but a few) have identified a strong correlation between metaphorical concepts and English vocabulary learning.

The Conceptual Metaphor Theory

Lakoff and Johnson (1980) introduce the theory of conceptual metaphor, which primarily merits recognition for taking metaphor out of the language and putting it into thought. The Conceptual Metaphor Theory posits that individuals metaphorically perceive various abstract concepts via the lens of more well-understood or concrete domains of knowledge (Lakoff & Johnson, 1980). In cognitive linguistics, metaphor is characterized as a conceptual projection derived from a

series of conventional mappings that create correspondences between two distinct conceptual domains, known as the source and target domains, enabling the understanding of one concept through another (Kövecses, 2010; Borys, 2023). For example, the metaphor BUSINESS IS A JOURNEY maps extant knowledge on the concept of a "journey" onto the concept of "business", so "journey" is the source domain and "business" is the target domain, as illustrated in Table 1.

This metaphor results in such derivative metaphors as COMPANIES ARE TRAVELERS, BUSINESS GROWTH IS THE ROADMAP AND DISTANCE COVERED, BUSINESS CHALLENGES ARE OBSTACLES ENCOUNTERED, BUSINESS TOOLS ARE VEHICLES (Hanh, 2024a). These metaphors can be exemplified by instances such as *price leadership*, *fast follower*, *exit barrier*, *trade barrier*, etc. As indicated in these metaphorical terms, the target domain of business can be structured by the source domain of a journey, and the terms used in relation to "journey" are consistently utilized in reference to business.

Metaphor serves as a cognitive tool that facilitates understanding and cognitive processes, clarifying and concretizing concepts by specifying their meanings (Borys, 2023). Additionally, metaphors enhance our communication vividness and retention, shape perceptions of the world, or influence listeners (Hanh, 2024b). Recognizing and employing the metaphorical words and expressions is an essential skill for English learners to expand their vocabulary, as metaphor represents a vital resource regarding polysemy (Hua, 2020).

Conceptual Metaphors in Business Terminology

Business is a notoriously difficult concept to understand. Therefore, understanding the cognitive dimensions of business is critically important, particularly given that much of our conceptual framing is unconscious and may go unnoticed (Lakoff & Johnson, 2003). Numerous authors have concluded that metaphorization is one of the most productive means in creating new business words and expressions (Hanh, 2024a, 2024b; Kheovichai, 2015). A wide range of business terminology is metaphorical, such as *business environment*, *corporate strength*, *corporate life cycle*, *branch man-*

Table 1
Mapping of BUSINESS IS A JOURNEY Metaphor

Source domain's attributes (Journey)	Correlates to	Target domain's attributes (Business)
Travelers	➔	Companies
Vehicles	➔	Business tools
Roadmap and distance covered	➔	Business growth
Obstacles encountered	➔	Business challenges

Note. Adapted from Hanh (2024a).

ager, capital injection, cash flow, sunk cost, emerging market, product roadmap, seed capital, etc. The most prevalent metaphors in economic discourse originate from the realm of military affair, building, journey, sports competition, human beings, plants, etc.

Metaphors are classified into three different categories concerning cognitive function: structural metaphors, orientational metaphors, and ontological metaphors (Lakoff & Johnson, 2003; Kövecses, 2010). Structural metaphors are a type of conceptual metaphor in which one abstract or complex concept is structured or comprehended via the lens of another, utilizing a set of correspondences between source and target domains. Orientational metaphors facilitate the comprehension of concepts in a cohesive manner, grounded in our image-schema understanding of the world. The

concept of orientation can be briefly defined as the comprehension of spatial relationships, including inside-outside, in-out, center-periphery, up-down, and deep-shallow. They can be represented with words that denote position (low, high, etc.), or orientation (front, back, up, down, etc.). Ontological metaphors involve perceiving abstract notions (emotions, feelings, actions, activities, and ideas) as physical entities that can be seen, touched, categorized, and measured for enhanced comprehension. These metaphors are not only rhetorical devices; they function as cognitive shortcuts that enable us to conceptualize complex and abstract processes in familiar terms, rendering them essential in a domain as multifaceted as business (Hanh, in press). Samples of business terms designated from structural, ontological, and orientational metaphors are shown in Table 2, Table 3, and Table 4 as follows:

Table 2

Structural Metaphors in Business Terminology

Structural metaphors	Examples of metaphorical terms
COMPANIES ARE BUILDINGS	<i>organizational structure, closed corporation, front organization, corporate restructuring, etc.</i>
COMPANIES ARE MILITARY FORCES	<i>chief executive officer, strategic alliance, category killer, etc.</i>
MARKET IS BATTLEFIELD	<i>price war, trade war, target market, etc.</i>
BUSINESS ACTIVITIES ARE MILITARY OPERATIONS	<i>antitakeover defense, hostile takeover, blockade, backflip takeover, white knight defense, etc.</i>
BUSINESS STRATEGY IS MILITARY STRATEGY	<i>defensive tactics, attack strategy, takeover tactic, customer acquisition strategy, etc.</i>
BUSINESS RESULTS ARE BATTLE RESULTS	<i>win-lose negotiation, win-lose strategy, defeat, dominate, etc.</i>
BUSINESS IS A JOURNEY	<i>pioneer firm, price follower, market-leading move, business roadmap, barrier to exit, entry barrier, etc.</i>
BUSINESS COMPETITION IS SPORT COMPETITION	<i>industry player, competitor, outperform, endgame strategy, total weighted score, balance scorecard, etc.</i>

Note. Adapted from Hanh (2024a, 2024b).

Table 3

Ontological Metaphors in Business Terminology

Metaphors	Examples of metaphorical terms
MARKET IS AN ANIMAL	<i>deer market, bull market, bear market, bearish market, etc.</i>
COMPANY IS AN ANIMAL	<i>porcupine defense, killer bee, turkey, gazelle, elephant, gorilla, copycat, etc.</i>
PRODUCT IS AN ANIMAL	<i>dog, golden goose, turkey, etc.</i>
CAPITAL IS A LIQUID	<i>capital inflow, cash flow, capital injection, capital outflow, etc.</i>
BRAND IS A PHYSICAL ENTITY	<i>brand architecture, brand archetype, brand building, brand health, brand platform, etc.</i>
INDUSTRY IS A PHYSICAL ENTITY	<i>industry life cycle, infant industry, industry attractiveness, fragmented industry, industry structure, etc.</i>
ECONOMY IS A PHYSICAL ENTITY	<i>economic recovery, economic strength, economic depression, black economy, underground economy, etc.</i>
PRICE IS AN ENTITY	<i>price elasticity, pricing boundary, price corridor, price pressure, etc.</i>

Note. Adapted from Hanh (in press).

Table 4
Orientational Metaphors in Business Terminology

Metaphors	Examples of metaphorical terms
GOOD IS UP, BAD IS DOWN	<i>economic upturn, economic downturn, sunrise industry, top-of-mind awareness strategy, bottom-end goods, high-end goods, top-of-mind brand, etc.</i>
MORE IS UP, LESS IS DOWN	<i>knockdown price, markdown strategy, declining industry, price ceiling, price floor, capital raising, low-priced goods, etc.</i>
DEVELOPMENT IS OUTWARD	<i>brand extension strategy, product line extension, capital expansion, market expansion grid, product extension merger, etc.</i>

Conceptual Metaphors and Vocabulary Teaching and Learning

Investigating the effectiveness of teaching vocabulary via metaphor awareness and competence, scholars assert that organizing new vocabulary according to the conceptual metaphors from which it originates can assist children in mastering vocabulary. An effective application of metaphor-based approach can improve students’ vocabulary acquisition (Boers, 2004; Çelik, 2021; Hua, 2020) across several disciplines (Bennett, 2022), aids in the retention of figurative expressions and enhances overall communicative language proficiency (Kweldju, 2005), and increase students’ motivation to learn new vocabulary (Hua, 2020).

Furthermore, a great deal of research on the utilization of orientational metaphors in teaching phrasal verbs having the particles like *up, down, in, out ...* (Boers, 2000; Kövecses & Szabó, 1996; Nhu & Huyen, 2009) have come up with the conclusion that students demonstrate proficiency in retaining the meanings of learned phrasal verbs and effectively applied their cognitive knowledge to guess the meanings of unfamiliar words or phrases. Meanwhile, Boers (2000) discovers that the cognitively taught group exhibited performance on par with the others regarding the formation of new multi-words. It is worth noting that some experimental research on CMT-based approach demonstrate that experimental group’s post-test performance was moderate, indicating no significant improvement over the control group which received the traditional teaching method (Karahan, 2015; Lu & Sun, 2017; Al-Otaibi, 2019; White, 2012).

It is proven that metaphor is a crucial component in designating new business vocabulary (Kheovichai, 2015; Hanh, 2024a, 2024b, to name but a few), and metaphor-based approaches have shown commitment in vocabulary teaching. However, there remains a significant gap in discovering how structural, ontological, and orientational metaphors can be combined in English for Business Purpose lectures. Therefore, this study addresses a critical research gap by investigating the utilization of three different categories of con-

ceptual metaphors in teaching business vocabulary to foster students’ vocabulary learning outcomes.

METHOD

Research Design

This study utilizes a quasi-experimental research design, characterized by the manipulation of various comparison groups with which treatment groups are contrasted in numerous natural social contexts (Shadish et al., 2002). This research design was adopted to examine the effect of a CMT-based pedagogical approach to teaching business vocabulary (independent variable) on students’ vocabulary outcomes—acquisition, retention, and lexical inference (dependent variables). In order to assess the effectiveness of CMT-based vocabulary teaching and learning approach, analysis of variance was conducted utilizing statistical analysis of the data gathered from one pretest and two post-tests.

Research Setting

This study took place at Thuongmai University in Vietnam, which provides numerous linked program international trainings. Most of these programs are to be delivered via EMI which equips learners with the fundamental and specialized knowledge required for success in diverse areas of business. Upon completion of the programs, learners will get degrees from prestigious international universities, mainly from France, Austria, the UK, Australia, etc. It is mandated by the Government that the pre-EMI phase comprises intensive English courses (MOET, 2014 ¹), encompassing General English, English for Academic Purposes, and English for Specific Purposes. This stage is crucial as it provides students with foundational English skills, specialized terminology pertinent to their disciplines, and academic literacy relevant to their EMI fields. English courses encompass a variety of business training programs, ranging from foundational to advanced levels.

¹ MOET (2014). Thông tư ban hành quy định về đào tạo chất lượng cao trình độ đại học [Circular No. 23/2014/TT-BGDĐT on “regulations on high quality programs in universities”]. http://www.moj.gov.vn/vbpq/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=29742

In the pre-EMI phase, students at Thuongmai University mainly have General English lessons focusing on four macro skills of the English language including listening, speaking, reading, and writing throughout their first year, before advancing to other disciplines, including English for Business Purposes. The English for business purposes module lasts 10 weeks and encompasses such business topics as companies, brands, capital, market and marketing, business activities, business competition, business environment, etc. This course intends to provide students with fundamental business terminology and enhance their language proficiency in business contexts.

Participants

A purposive sampling method – one of nonprobability sampling techniques – was used for the selection of the participants, in which the researcher/teacher selects subjects based on specific characteristics or qualities that are relevant to the research purpose (Creswell & Creswell, 2018). The rationale for choosing participants using this sampling technique is to ensure homogeneity in language proficiency, learning background, and demographic characteristics. The purposefully designated participants for the current study were recruited from a population of 58 second-year students majoring in International Business at Thuongmai University in Hanoi, Vietnam. Participants were randomly divided into two groups, namely, control group and experimental group, each with 29 students. These two groups were separated and placed into two different classes.

Regarding the demographic information of the participants, they were non-English speaking students, and their age ranged from 20-22. Twenty-two of them are male, making up 38% of the population, and 36 are female, which accounts for 62%. The participants had studied English as a compulsory subject in previous semesters at university. Their general proficiency in English should be at B1 and B2 levels of CEFR, and none of them had studied business English before. As a result, their understanding of English business terminology, concepts, and information is somewhat limited. English for business purposes is one of the compulsory courses they have to complete before taking EMI courses.

The study adhered to ethical standards in educational research by securing informed consent from participants and assuring them of the confidentiality of the collected data.

Experimental Procedure

The study lasted 10 weeks, the whole process of which can be described as follows: In the first week, the researcher/lecturer employed the traditional method in both classes. In the second week, the Nelson Proficiency Test, utilized to assess English proficiency levels, was administered to determine if the students in the experimental and control groups

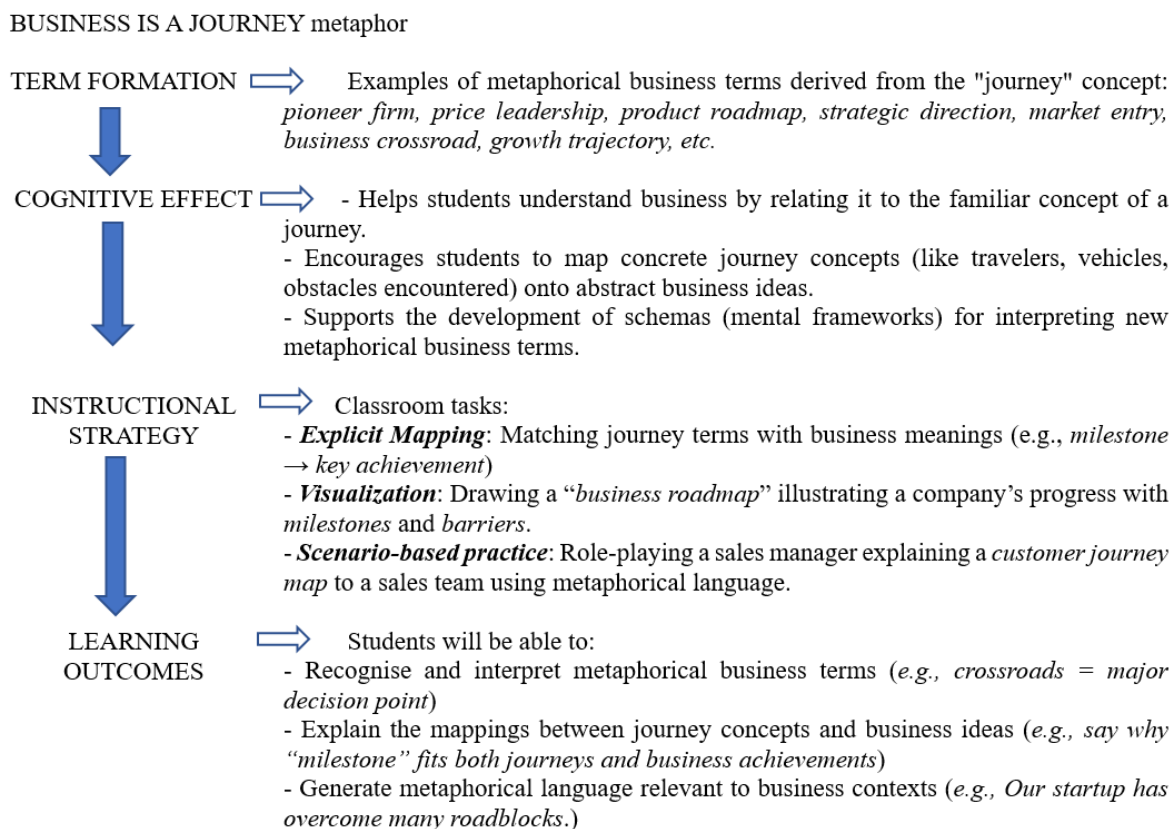
have comparable general English knowledge prior to the intervention. The test comprised a total of 50 items (multiple choice, matching, and short answer), with a duration of 60 minutes for completion. Each correct answer was worth 0.2 point, resulting in a maximum score of 10 points. The independent samples t-test was employed to compare the pre-test results of both groups to ascertain whether all participants initiated the study with equivalent English proficiency levels. The mean scores for the control group and experimental group are 6.090 (SD =0.6710) and 6.041 (SD =0.7585), respectively. The p-value of Levene's test for equality of variances is 0.303, exceeding 0.005. Besides, the p-value of the t-test for equality of Means is 0.798, greater than 0.005. The results indicated no significant difference between the two groups regarding their general English level. The students exhibited homogeneity in their business English proficiency before the experiment. This result aligns with the established norms in true experimental research.

The experiment took place in the next 8 weeks, with one 90-minute training session each week. The instructional methods varied across the treatment and control groups, despite both being taught by the same lecturer. The control group received traditional vocabulary instruction (grammar-translation, definition-based instruction, and word-focused exercises), whereas the treatment group received CMT-based instruction through conceptual metaphors for business terms. Students were first introduced to mapping schemes, the features to be projected from the source domains onto those of the target domains in business as illustrated in Table 1 above. In the next phase, students received CMT-based instruction through the teacher's explanation of the literal meaning of metaphorical elements comprising business terms. After that, the students got to know the definition and usage of metaphorical business terms (as illustrated in Tables 2-4 above) and practiced using the terms in various tasks.

In line with CMT, the vocabulary lesson design and test construction in this study were grounded in the systematic use of source-target domain mappings and metaphorical schemas. Figure 1 shows a sample model of the CMT-based method in teaching business vocabulary.

It is also important to note that, to parallel the experiment group, the contents of business vocabulary for the control group were the same as the ones taught through conceptual metaphors for the experimental group. At the end of the experimental period, students in both the experimental and control groups took an immediate post-test to assess their vocabulary learning outcomes. There was a 4-week interval for the delayed post-test in order to measure students' vocabulary learning retention. It is evident that, except for the different treatments between two groups, no further external interventions that could bias the experiment were implemented.

Figure 1
A Sample CMT-Based Activity in Teaching Business Vocabulary



Data Collection Instruments

The instruments included an immediate post-test and delayed post-test to measure students' vocabulary learning outcomes after the treatment period. All the tests were the same for both experimental and control groups. The tests were administered in 60 minutes. Each test contained 50 items including multiple-choice, matching, fill-in-the-blank, matching synonyms/ antonyms and comprehension questions based on four passages, etc. The participants' scores were shown in a range from 0 to 10. The rubric for marking open-ended questions is accuracy, context-appropriateness, clarity.

The immediate and delayed post-tests cover noticing, retrieval, and generative tasks in accordance with the expected Course Learning Outcomes (CLO) to check students' cognitive processes. According to the test matrix, 30% of the questions check students' noticing process, including multiple choice or identification of metaphorical meanings in context. 40% of items check students' retrieval process with defining, matching, or recalling metaphorical terms. The rest 30% of test items are generative tasks which require students to use metaphorical expressions in new, relevant business contexts. In terms of test constructs, forty questions were taught in the lectures, and the other ten items - accounting for 20% of total scores- were untaught

and unfamiliar terms like *capital injection, frozen market, red ocean strategy*, etc. The reason for posing the additional ten questions is to evaluate students' ability of logical inference, specifically the impact of conceptual metaphor awareness on unfamiliar business terminology automatically.

The tests strictly adhere to the regulated matrix. However, to assure the content and construct validity and equalize the difficulty of materials in the pre-test, immediate post-test and delayed post-test, the materials were reviewed by two experienced educators. Coding disputes were satisfactorily resolved, and ambiguous cases were discussed until reaching a consensus of 100% coding results. The tests were modified in accordance with the course objectives as well as the aim of the study. Subsequently, these tests were piloted with 10 students analogous to the intended sample and population for familiarity and difficulty. Students rated each term on a 5-point scale. Items with mean familiarity < 2.5 were revised with additional context or removed. Questions with Item Facility Index ranging from 0.30-0.80, and Discrimination Index of more than 0.30 are kept. The reliability of the vocabulary test was assessed using Cronbach's alpha. The Cronbach's alphas coefficient of these vocabulary tests were 0.855, 0.839, and 0.892 respectively, indicating good internal consistency. Besides, the Exploratory Factor Analy-

sis was conducted to verify that items cluster into expected constructs: noticing, inference, and generative use.

The samples of post-test items are illustrated in Table 5 as follows: Upon completion of the tests by the participants, the researcher/lecturer assessed the effectiveness of the learning methods for both the control and experimental groups by calculating (1) the overall response accuracy rate and (2) the correct rate of untaught words and expressions. The objective for requesting learners to answer the same questions is to determine whether the group has superior vocabulary learning outcomes, including vocabulary acquisition, lexical inference, and vocabulary retention.

Data Analysis

The SPSS software version 26.0 was utilized for data analysis derived from three tests. The means and standard deviations of students' scores on pre-tests, immediate post-test and delayed post-test were compared using independent samples t-tests. This technique is appropriate in this study because the control and experimental groups consisted of different participants, and the comparison focuses on immediate and delayed post-test performance between these two independent groups. The tests determine whether the difference in mean vocabulary gains is statistically significant, while a one-way ANOVA was utilized to compare the scores of the experimental and control group at various time points. It has to be clarified that the score scale is 0-10, that is, the perfect score is 10.

RESULTS

The Effect of CMT-based Approach on Students' Vocabulary Acquisition

The administration of the immediate post-test and the evaluation of the associated data were conducted to determine

Table 5
Samples of Test Items

Test items	Task types	Test construct	Note
1. In the sentence "This hand-made product is our cash cow, thanks to a huge number of international tourists", what does cash cow mean? A. A low-profit unit B. A profitable unit C. A risky project D. A livestock business	noticing	inference	untaught term
2. Which market typically refers to a prolonged drop in stock prices? A. bear market B. bull market C. deer market D. monopolistic market	noticing	acquisition	
3. What is seed capital typically used for?	retrieval	acquisition	
4. What does horizontal merger most likely mean in this context?	retrieval	inference	untaught term
5. Make a sentence using brand health in a branding context.	generative	acquisition	

whether the students in the control group and experimental group differed in their level of achievement following the treatment. An independent samples t-test was utilized to compare the results of the immediate post-test scores between the two groups, the statistics of which are shown in the following tables:

Table 6 illustrates a significant disparity in mean scores between the two groups, with the experimental group achieving a mean score of 7.662 (SD=0.6971), surpassing the control group's mean score of 6.710 (SD=0.6816). Additional metrics also demonstrated a considerable difference between the scores of students in the two groups. The p-value of Levene's test is 0.749, which confirms the assumption of homogenous variance. In addition, the t-test for equality of Means results in the p-value of 0.00, which is below 0.05. Consequently, the analysis of mean scores between and within groups before and after the implementation of CMT-based approach indicates that teaching and learning vocabulary by means of conceptual metaphors positively influenced students' vocabulary learning outcomes.

The Effect of CMT-based Approach on Students' Lexical Inference

To determine the impact of CMT-based teaching method on students' ability to infer the meaning of untaught business terms, descriptive statistics were performed, as illustrated in Table 6 and Table 7. Regarding new or unlearned business terms, Table 6 illustrates that the overall mean of part 2 (with the maximum score of 2.0 for testing untaught business terms) that the experimental group achieved is 1.228 (SD=0.3494), while the overall mean score for the control group is 0.510 (SD=0.2858). The t-test for equality of Means in Table 7 with significant equal to 0.00 also revealed that there was a significant difference between the two groups' scores. This finding indicates the effective implementation of the CMT-based teaching strategy to enhance students' ability of lexical inferencing to address unfamiliar business terminology.

Table 6
Group Statistics of Students' Immediate Post-Test Scores

	Group	N	Mean	Std. Deviation	Std. Error Mean
Immediate post-test	Experimental	29	7.662	.6971	.1295
	Control	29	6.710	.6816	.1266
Inference questions	Experimental	29	1.228	.3494	.0649
	Control	29	.510	.2858	.0531

Table 7
Independent Samples T-test of Immediate Post-Test Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Immediate post-test	Equal variances assumed	.103	.749	5.257	56	.000	.9517	.1810	.5890	1.3144
	Equal variances not assumed			5.257	55.971	.000	.9517	.1810	.5890	1.3144
Inference questions	Equal variances assumed	.629	.431	8.557	56	.000	.7172	.0838	.5493	.8852
	Equal variances not assumed			8.557	53.882	.000	.7172	.0838	.5492	.8853

The Effect of CMT-Based Approach on Students' Vocabulary Retention

To identify the vocabulary learning retention rate, one-way ANOVA test was conducted to analyze the scores gained by both groups on the delayed post-test (see Table 8).

As evidenced by the comparison of delayed post-test scores in Table 8, the sig. = 0.000 reveals the differences between the scores gained by the two groups, in which the experimental group outperformed the control group. These results suggest that the use of CMT-based teaching method contributed significantly to long-term retention of business vocabulary among participants in the experimental group. The overall performance of the experimental group and control group at three different testing points are shown in Figure 2.

DISCUSSION

In light of conceptual metaphor theory, the present study has supported both the short-term and long-term impacts of the CMT-based approach in teaching business vocabulary. The results show that the mean scores from three tests reveal distinct patterns between the experimental and control groups. Overall, the control group exhibited minimal

improvement from pre-test to both immediate and delayed post-tests. In contrast, the experimental group demonstrated a significant increase in mean scores from pre-test to immediate post-test, followed by a slight decrease from immediate post-test to delayed post-test.

Concerning business vocabulary acquisition, the results of the present study suggest that conceptual metaphors beneficially influence students' vocabulary acquisition. This confirms the first research question that CMT-based teaching approach improves business vocabulary acquisition in EFL learners. These findings are in line with research conducted by Bennett (2022), Boers (2004), Çelik (2021), Kövecses & Szabó (1996), Nhu and Huyen (2009), etc. Teaching new vocabulary according to the conceptual metaphors from which it originates would facilitate students' comprehension of the terms. Therefore, enhancing metaphoric competence will undoubtedly benefit English language acquisition. Students will understand the intrinsic similarities of language, since metaphor serves as a fundamental source of word formation. However, the findings of the present study contradict the conclusions stated in Karahan (2015), Lu and Sun (2017), Al-Otaibi (2019), and White (2012) who discover a minimal correlation between conceptual metaphors and students' performance on the post-tests.

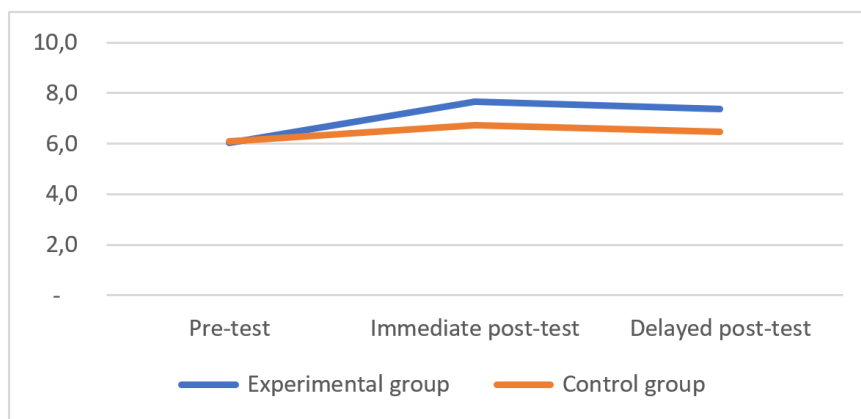
Table 8

ANOVA Test Results for the Delayed Post-Test

		Sum of Squares	df	Mean Square	F	Sig.
Delayed post-test	Between Groups	12.017	1	12.017	33.563	.000
	Within Groups	20.050	56	.358		
	Total	32.066	57			

Figure 2

A Comparison of Scores Gained by Two Groups at Three Different Testing Points



Regarding business lexical inferencing, it is found in the present study that the students in the experimental group performed better than those in the control group. Participants in the experimental group were introduced to polysemous concepts of metaphorical words or expressions such as “barrier”, “key”, “follower”, “war”, “health”, etc. Therefore, they can associate the literal meaning of related term-elements to deduce the meaning of untaught business terms like *barrier to imitation*, *key market*, *fiscal strength*, etc. which were not explained in the course. This validates the second research question that CMT-based teaching approach improves business lexical inference in EFL learners. These findings are consistent with the conclusion by Boers (2000). When students encounter unfamiliar words or expressions, they may utilize their existing knowledge to form connections and endeavor to interpret the target words. Consequently, students can make inferences of the meanings of unfamiliar terms.

In terms of vocabulary retention, the current study reveals that participants of the experimental group demonstrate superior vocabulary retention compared to those in the control group. The third research question is addressed with the study's findings, which claim that CMT-based teaching approach improves long-term retention of business vocabulary in EFL learners. These findings are in accordance with the opinions of many experts like Boers (2000) and Kweldju (2005). Conceptual metaphor assists learners in forming connections between metaphorical terms and its more concrete senses, potentially resulting in a higher vocabulary retention rate. Consequently, promoting students' metaphor-

ical awareness will facilitate their vocabulary retention in a second language.

Implications

The findings of this study provide empirical support for the integration of Conceptual Metaphor Theory into English for Specific Purposes, particularly in business English vocabulary instruction, as conceptual metaphors are teachable and learnable, and can serve as a framework for ESP curriculum design. Some implications may be beneficial for English language teachers and students in general. *Firstly*, metaphors should be employed in education as they enhance learning through conciseness and vividness. Lecturers should raise students' awareness of conceptual metaphors by presenting mapping schemas, source and target domains, and literal meanings of metaphorical expressions. This approach will promote students' metaphorical competence, facilitate their comprehensive understanding of metaphorical terms, enable students to deduce the meanings of unfamiliar figurative terms, and aid in the prolonged retention of these terms. *Second*, educators may encourage students to organize specialized terms into thematic categories derived from conceptual metaphors to improve their vocabulary expansion. Besides, the source domains employed in conceptual metaphors may not be equally recognizable to all students, metaphor transferability may vary across cultures or disciplines.

Therefore, educators should design activities for students to practice analyzing polysemes by means of conceptual meta-

phors, which can enhance vocabulary retention and deepen comprehension of polysemous terms. Moreover, in teaching vocabulary, teachers can curate analogous metaphorical terms or non-literal terms and guide students to deduce the meaning of terms utilizing their knowledge metaphorical term-elements. Additionally, to enhance vocabulary acquisition efficiency, second language learners should endeavor to create associations between words and their cognitive connotations. Students need to develop their awareness of metaphor and metaphoric competence. Identifying and understanding metaphorical words, mapping principles, mapping schemas, features to be projected from the source domain onto the target domain can facilitate the expansion of contextual vocabulary and promote their understanding of the subject, as metaphors significantly contribute to framing their cognition.

CONCLUSION

The purpose of the study is to investigate the application of the Conceptual Metaphor Theory in teaching English business vocabulary. The findings of the study indicate that CMT-based business vocabulary instructions can positively affect students' vocabulary learning outcomes. Students' vocabulary acquisition, lexical inference, and vocabulary retention could be improved by means of the CMT-based approach in teaching business vocabulary. Through concrete schemas and conceptual metaphors like BUSINESS COMPETITION IS SPORT COMPETITION, BRAND IS A PHYSICAL ENTITY, etc. students are able to visualize abstract concepts in business. This method not only improves vocabulary retention but also makes it easier for students to comprehend and apply metaphorical understandings in a variety of business contexts.

The results also have significant consequences for pedagogical practices in English for Business Purposes. The study suggests that educators can better facilitate business vocabulary learning by explicitly highlighting the conceptual mappings that underpin essential lexical items. By assigning students source-target mapping activities, lecturers can foster the language and cognitive abilities necessary for professional discourse. Conceptual metaphors serve as a

bridge between language and mind. Consequently, CMT-based vocabulary instruction may offer a remarkable basis for the advancement of cognitive science in language instruction. In other words, the cognitive properties of metaphors can enhance students' language learning outcomes. These discoveries are promising; therefore, it is essential to implement the CMT-based strategy in teaching vocabulary, enabling students to develop their cognitive styles and enhance their vocabulary learning efficiency in a more logical manner. Furthermore, the findings suggest that future classroom applications may be enhanced by integrating metaphor education into case studies, presentations, and real-world business situations, enabling students to utilize metaphors in contextually relevant manners. These pedagogical insights can assist practitioners in designing more cognitively engaging evidence-based practice programs that promote long-term vocabulary growth.

While the results of this study may enhance our comprehension of the pedagogical benefits of teaching business vocabulary through conceptual metaphors, certain limitations necessitate further consideration. Firstly, the participants involved in the quasi-experiment are graduate students with a limited population size. The extent to which the findings can be extrapolated to bigger or different groups remains mostly ambiguous. Secondly, all participants are students of Thuongmai University - a public university in the capital of Vietnam, which means they have originated from a comparable background.

There are some directions for further work. First, further attempts can be adopted by applying conceptual metaphor in teaching vocabulary to larger populations to further validate its effectiveness. In addition, future research may seek to conduct similar research with a more diverse sample by incorporating learners from various socioeconomic statuses and backgrounds, potentially achieved by sampling from multiple types of higher education institutions.

DECLARATION OF COMPETING INTEREST

None declared.

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