

Revisiting the Assessment of Metaphor Learning Performance through English Language Learners' English Writings: A Systematic Review

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How to cite this paper: Niu, B., & Ganapathy, M. (2025). Revisiting the Assessment of Metaphor Learning Performance through English Language Learners' English Writings: A Systematic Review. *Open Journal of Modern Linguistics*, 15, 1-21.

<https://doi.org/10.4236/ojml.2025.151001>

Received: September 2, 2024

Accepted: January 18, 2025

Published: January 21, 2025

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Abstract

By means of using a systematic review, this research aims to revisit and formulate potential dimensions to assess English Language learners' metaphor learning performance through their English writings. Adhering to the preferred reporting items for systematic reviews and meta-analyses guidelines, the study outlines the publication selection procedures and confirms the final dataset. After reviewing relevant articles, it is found that metaphor researchers can employ metaphor identification procedures and English writings to measure English learners' metaphoric competence and evaluate their metaphor learning achievements. However, there is a tendency to neglect the creativity, complexity and contextual factors of metaphor operation, which significantly constitute and affect individuals' metaphorical performance. To address these gaps, certain dimensions are proposed to achieve the objectives of the current research. Additionally, the study illustrates the research limitations and highlights the pedagogical implications for literatures in the realm of English writing and metaphor studies, English education, and subsequent research in higher education institutions.

Keywords

Metaphor, Conceptual Metaphor, Metaphor Identification Procedure, Metaphoric Competence, Metaphor Learning Performance, English Writing

1. Introduction

Metaphor is a fundamental and ubiquitous element of language, increasingly

valued for its significance in various language uses than ever (Littlemore & Low, 2006; Low, 1988; Niemeier, 2017). In academic writing, metaphors are employed to clarify complex ideas and promote the precision of scholarly communication, making them essential for effectively conveying specialized knowledge and concepts (MacArthur & Alejo-González, 2024). Globally, metaphors should be incorporated into English as a lingua franca (ELF) education in higher education institutions (MacArthur & Alejo-González, 2024; Kathpalia & Carmel, 2011). However, metaphor instruction has been often overlooked or inadequately addressed in language teaching, with metaphors frequently absent from English syllabus, courses, and textbooks (Gutiérrez Pérez, 2018; Kathpalia & Carmel, 2011). Despite their importance in scholarly communication among undergraduates and post-graduates across universities in Europe, studies on metaphor receive minimal attention (MacArthur & Alejo-González, 2024). This oversight has persisted to the present day.

It is worth noting that metaphoric competence is crucial for English language learners (ELLs) as it influences their receptive and productive ability to use metaphorical expressions across various settings (Low, 2008; O'Reilly & Marsden, 2021, 2023). Despite this, English as second language (ESL) learners' use of metaphors is not always acknowledged as a core competency (Littlemore & Low, 2006). Developing metaphoric competence is imperative for ELLs to achieve beyond basic communication and succeed in global interactions (Kathpalia & Carmel, 2011). It is noteworthy that assessing ELLs' metaphor use through English writing offers a comprehensive view of linguistic, cognitive, communicative and cultural competencies, making it an effective tool for evaluating their metaphor learning performance. Some scholars have adopted metaphor identification procedures in English writings to identify metaphorical lexical units, metaphor clusters, and densities, evaluate and assess ELLs' metaphoric competence and metaphor use (e.g., Saneie Moghadam & Ghafar Samar, 2020; Hoang & Boers, 2018; Chen, 2020; Littlemore, Krennmayr, Turner, & Turner, 2014). However, relatively little attention has been paid to ELLs' productive use of metaphor in English writings (MacArthur, 2010). Additionally, there are constraints in evaluating ELLs' metaphor learning achievements, such as overlooking the innovative and complex aspects of metaphor operation in their English written texts.

To facilitate metaphor instruction and bridge the gaps in ELF context, the research proposes two research questions (RQ): 1) How can English writings be utilized to identify metaphors, measure metaphoric competence and evaluate metaphor use among English language learners? 2) What are the dimensions to assess English language learners' metaphor learning performance through their English writings? The following sections will review relevant literature, outline research methods, discuss findings to answer these questions and achieve goals of the study.

2. Literature Review

The development of metaphors has evolved through various stages, including

traditional metaphors, conceptual metaphors, grammatical metaphors, and multimodal metaphors. To align with the research purpose and framework, this study focuses primarily on traditional and conceptual metaphors, excluding the others. Understanding metaphors involves two core concepts: the target domain and the source domain. The target domain refers to the semantic field being discussed, whereas the source domain pertains to the semantic field used to explain, comprehend, or assess the target (Kathpalia & Carmel, 2011). These definitions, although simplified, are sufficient for helping understand related metaphor identification procedures, metaphoric competence and metaphor learning performance.

2.1. Metaphor Identification Procedures

Currently, there are two influential approaches to identifying metaphorical language and assessing metaphor learning achievement: Metaphor Identification Procedure (MIP) originally developed by the Pragglejaz Group (2007) and Metaphor Identification Procedure Vrije Universiteit (MIPVU) proposed by Steen et al. (2010). This MIP procedure has been simplified to recognize metaphors using the following steps. Analysts first understand the overall meaning of whole texts, identify each lexical unit, ascertain its meaning in the given context, and then determine if the lexical unit has fundamental meaning in other contexts. If this is the case, it is labeled as a “metaphorical use” (Littlemore et al., 2014). MIP can be highly beneficial for confirming the presence of metaphors. However, it possesses some limitations, such as isolating indirectly referenced cases, excluding simile, direct analogy, historical metaphors and metaphors in morphology, phraseology, and syntax (Low, Littlemore, & Koester, 2008; Steen et al., 2010). To fill these gaps, Steen et al. (2010) developed MIPVU as a useful tool for systematically identifying metaphor-related words (MRWs) in discourse by examining lexical expressions that involve cross-domain mappings. MIPVU classifies these MRWs into such categories as direct metaphors, implicit metaphors, and metaphorical flags, depending on how the words map to meanings, interpretations, or themes within the text through cross-domain mappings. Following general principles, the MIPVU allows for a thorough and well-organized identification of metaphors within diverse types of texts. To elaborate, analysts identify lexical units and then focus on the indirect use of metaphors that may be interpreted through cross-domain mapping. Specifically, this process involves basic procedures such as identifying contextual meanings, determining more basic meanings, and evaluating sufficient dissimilarity and similarity. Additionally, the process continues to focus on the direct use of metaphors that may be interpreted through cross-domain mapping or implied meanings. In this step, attention should be given to potential signals of cross-domain mapping, and then the new forms and aspects of possible interpretations of cross-domain mappings are elaborated upon. The reliability of MIPVU has been tested, showing that its recognition protocol is both clear and practical, allowing individuals

to figure out not only metaphors but also a diverse range of metaphorical attributes (Littlemore et al., 2014; Chen, 2020). In practice, both MIP and MIPVU have been adopted to identify potential metaphors in English writings, establishing a strong foundation for the measurement of metaphoric competence and the use of metaphors among English learners.

2.2. Metaphoric Competence

Metaphoric competence, along with linguistic capacity and communicative competence, is a core competency that should be prioritized in English education of ELLs. While curriculum designers recognize the crucial role and primary function of metaphor in language learning, more specific guidance is needed to help students effectively integrate metaphors into their English studies. There is a strong research foundation on defining and measuring metaphoric competence in English learners. For instance, as addressed by Low (1988), students should be instructed to create potential meanings with metaphors, recognize the features of traditional metaphors, understand feasible combinations of topic and vehicle, manage “fuzzy constraints”, grasp “socially sensitive” metaphors, appreciate multilayered metaphors, and develop an interactive awareness of using metaphors. Apparently, Low outlined essential skills for truly mastering English as a second or foreign language, collectively termed as metaphoric competence (Littlemore & Low, 2006). Afterwards, the study of Littlemore (2001) described and measured four aspects of metaphoric competence in language learning, i.e., the ability to produce original metaphors, quickly respond to sense and discover metaphorical meaning, and fluently interpret them. Subsequently, Littlemore & Low (2006) synthesized metaphoric competence within the context of ESL teaching and learning, arguing that it broadly involves the knowledge and ability needed to use metaphors effectively, initially discussed by Low (1988). Over three decades after Low’s (1988) work, O’Reilly & Marsden (2021) investigated metaphoric competence in ESL, clarifying its definition, identifying measurement challenges, and proposing a model for its underlying structure. Their exploratory factor analyses identified four latent L2 metaphoric competence variables: productive illocutionary metaphoric competence, metaphor language play, topic/vehicle acceptability, and grammatical metaphoric competence. These findings support Littlemore & Low’s (2006) research and demonstrate that ELLs’ metaphoric competence can be measured through various English writings. Additionally, theoretical and empirical studies (e.g., Gutiérrez Pérez, 2018; Kathpalia & Carmel, 2011; O’Reilly & Marsden, 2021) further reinforce the feasibility and vitality of assessing metaphoric competence through English writings. Nevertheless, challenges remain in measuring metaphoric competence, such as time demands, lack of standardized assessment criteria, and the neglect of traditional grammar, lexical collocations, and other aspects. To address these gaps, there is an urgent need for simplified methods to assess ELLs’ metaphoric competence and evaluate metaphor learning through English writings.

2.3. Metaphor Learning Performance

Metaphor learning performance, also known as metaphorical performance, refers to how well individuals recognize and employ metaphors in various contexts. It is rooted in metaphoric competence and influenced by multiple factors such as language proficiency, cognitive level, and cognitive style. Many studies have shown that ELLs' operation of metaphors can be analyzed and evaluated using three main methods in their English writing texts. The first involves examining discourse in academic papers, analyzing metaphor use both qualitatively and quantitatively and subsequently offering assessments (e.g., Saneie Moghadam & Ghafar Samar, 2020). The second method assesses English learners' mastery of metaphors through the corpus of their compositions from various English proficiency exams they took (e.g., Kathpalia & Carmel, 2011; Chen, 2020; Littlemore et al., 2014). The third approach entails giving students a set time to write on a given topic, then analyzing their metaphor use in the resulting texts (e.g., Hoang & Boers, 2018). Despite differences in how the metaphor analysis corpora are constructed and obtained, they all support the feasibility of using English writings to assess ELLs' metaphor learning performance, which is conducive to promoting the field of metaphor research. However, it is found that some studies overlook the creativity and contextual supports in ELLs' metaphors use after analyzing their English writings (e.g., Littlemore et al., 2014). To address these gaps, it is crucial to use appropriate methodology, present findings, and explore potential dimensions for assessing English learners' metaphor learning performance.

3. Methodology

This section outlines the review scope and publication selection procedure, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which involve four phases of records identification, screening, evaluation for publication eligibility and inclusion of studies for further analysis (Moher et al., 2009). **Figure 1** presents the flowchart of the systematic literature inclusion procedures according to PRISMA. The criteria and rationale behind the selection of research samples are primarily based on the objectives of assessing metaphor learning performance through ELLs' English writing.

3.1. Identification

The primary platforms for identifying potential articles were Web of Science (WoS) and Google Scholar. The search for publication period on WoS was set from January 2001 to January 2024, following Littlemore's (2001) proposal of metaphoric competence, which established a remarkable milestone for numerous metaphor studies. The researcher searched WoS by using the Boolean "AND" combinations of "English writing" with terms of "metaphor", "conceptual metaphor", "metaphor identification procedure", "metaphoric competence", and "metaphor learning performance". The final search results indicated that 3525 potentially relevant articles, papers and chapters had been published. Google Scholar

was not used to identify relevant articles in the current phase but was utilized to review additional articles during the eligibility phase, which will be discussed later.

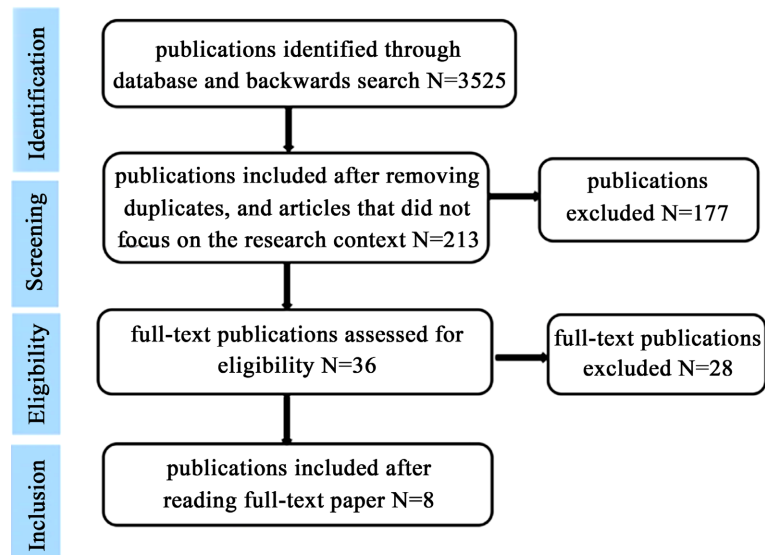


Figure 1. Flow chart of the systematic literature inclusion procedures through PRISMA.

3.2. Screening

The researcher screened and excluded 3312 publications. These records were removed based on title and abstract for various reasons. For instance, publications were excluded that clearly belonged to unrelated disciplines (e.g., computer science, nursing, management, etc.) or were not covered by the publication period. Besides, articles deemed irrelevant to this research or focusing on other language learners' metaphor use—such as studies on metaphor analysis of teachers' and students' perceptions about writing, and doctoral students' English academic writing experiences with metaphor analysis—were also filtered out. Consequently, this process narrowed the selection to 213 articles for in-depth review. These articles were read with more details of titles and abstracts, making preparation for the eligibility phase.

3.3. Eligibility

Subsequently, the researcher was determined to review 36 full-text articles for eligibility, after excluding those 177 publications irrelevant to the research questions, or inadequate for supporting the research frameworks and goals. The eligibility and selection of research samples required the research articles to focus on metaphor identification, metaphoric competence, or metaphor use/learning performance. This aligns with the research objective of evaluating ELLs' metaphor learning through their writing, as understanding how metaphors are identified and employed is essential for measuring metaphor learning outcomes. It is noteworthy that during the review of the full texts, 14 additional articles appearing in the references and quotations were searched and verified using Google Scholar.

However, since the new articles were discarded after reviewing, it was determined that they would not be included in the record counts for the identification and screening phases of the PRISMA.

3.4. Inclusion

After the eligibility phase, the final dataset of 8 articles was chosen based on two primary inclusion criteria: 1) focus on metaphor identification, metaphoric competence, or metaphor use/learning performance in English language learners' writings; and 2) relevance to the research objective of assessing ELLs' metaphor learning performance through English writings. These research samples were further analyzed to identify keywords for descriptive codes (Saldaña, 2016). Structural coding was subsequently applied to categorize the descriptive codes and form a framework aligned with the research questions: 1) How to identify metaphors, measure metaphoric competence and evaluate metaphor use through English writings; 2) dimensions to assess ELLs' metaphor learning performance through their English writings. For RQ1, the researcher examined and reviewed codes from the articles listed in Table 1 to identify findings and gaps. To address RQ2, various scholarly perspectives were cited in the discussion section to explore the specific dimensions for evaluating ELLs' metaphor learning accomplishments.

Table 1. Journal papers on identifying metaphors, measuring metaphoric competence and assessing metaphorical performance through English writings (2001.01-2024.01).

| Author(s) (year) | Title | Main type of research | Participants/samples | Instrument(s)/corpus | Context | Focus/keywords |
|--------------------------------------|--|-------------------------|--|--|--|---|
| Gutiérrez Pérez (2018) | The development of a metaphoric competence. A didactic proposal of educational innovation | A quantitative study | Students t in the Degree of Translation and Interpreting (English) at Pablo de Olavide University | oral assessment, final written test, post-test examination, an anonymous questionnaire, etc. | ESL Context, Spain | Conceptual metaphor theory; metaphoric competence; language awareness; educational innovation; common European framework of reference for languages |
| O'Reilly & Marsden (2021) | Eliciting and Measuring L2 Metaphoric Competence: Three Decades on from Low (1988) | A quantitative study | 112 L1 Mandarin speakers of L2 English; 31 L1 English speakers | Metaphoric competence Test Battery | ESL context, native-English speaking context, UK | Measurement of metaphoric competence (MC), MC Test Battery |
| Sanie Moghadam & Ghafar Samar (2020) | Metaphor in second language academic writing | A quantitative study | 50 Iranian non-native speakers; 50 native English speakers | 100 medical research articles, MIPVU | EFL Context, Iran; native English-speaking context | Metaphor; source domain; semantic tagging; English for academic purposes; academic writing; metaphorical awareness |
| Kathpalia & Carmel (2011) | Metaphorical Competence in ESL Student Writing | A quantitative analysis | First-year students of science and arts taking a communication skills course at Nanyang Technological University | 113 samples of written texts (an in-class assignment) across 5 tutorial groups | ESL Context, Singapore | figurative language, second language writers, language teaching, metaphorical competence, collocations |
| Chen (2020) | Assessing the Lexical Richness of Figurative Expressions in EFL Learners' Writing from Taiwan Region | A quantitative study | 442 EFL learners of four proficiency levels in the GEPT, namely, elementary, intermediate, high-intermediate, and advanced | 442 writing samples collected from the General English Proficiency Test (GEPT) | EFL contest, Taiwan Region | Lexical richness, figurative expression, L2 writing, EFL language proficiency test |

Continued

| | | | | | | |
|-----------------------------------|---|----------------------|--|---|--|---|
| Littlemore et al. (2014) | An investigation into metaphor use at different levels of second language writing | A quantitative study | 200 Greek- and German-speaking learners of English | 100 essays written by Greek learners of English and 100 essays written by German learners of English, MIPVU | ESL Context, Cambridge ESOL database of anonymized examination scripts | Metaphor use, different levels of second language writing, Common European Framework of Reference for Languages |
| Hoang & Boers (2018) | Gauging the association of EFL learners' writing proficiency and their use of metaphorical language | A quantitative study | 257 (out of 396) Vietnamese learners of English who were doing a four-year B.A. in English language. | 257 essays written by undergraduate English majors, MIP and Vehicle Identification Procedure | EFL context, Vietnam | Metaphorical language, polysemy, vocabulary, L2 writing proficiency, accuracy |
| MacArthur & Alejo-Gonzalez (2024) | Beyond idioms, the use of metaphor in ELF academic settings: A comprehensive review | A qualitative study | existing research about metaphor in English in academic discourse and in ELF | METCLIL corpus of nine business seminars recorded at six non-English speaking universities in Europe | academic context, English as lingua franca, Europe | Metaphor, academic discourse, English as lingua franca, English as medium of instruction, METCLIL corpus |

The phases of PRISMA used to select articles from WoS based on keyword searches might not ensure that all relevant publications were identified. Nonetheless, consistent with leading publications and established frameworks, the perspectives and conclusions drawn in this study were considered logical, equitable, and trustworthy.

4. Findings

After eight research samples were selected, they are shown in **Table 1**, categorized by author (s), titles, research type, research samples, selecting instruments, context and research focus. This table provides an overview of diverse research on metaphor identification, measurement of metaphoric competence and assessment of metaphorical performance through English writings. Particularly, each study explores different aspects of metaphor use, including the richness of metaphorical expressions, the development of metaphorical competence, and the use of metaphorical language in language learners' English essays or academic writings. The research spans various geographic settings such as the UK, Spain, Singapore, and Vietnam, using either quantitative or qualitative methods, especially within ESL and EFL contexts. Frequently used instruments to assess participants' metaphor use include written English essays, corpora of academic English writing and metaphor test batteries. Collectively, these studies underscore the significance of metaphorical language as an essential component of linguistic proficiency and its pedagogical implications in English education.

To establish a more detailed framework for classifying and discussing the eight samples of selected articles, the researchers meticulously reviewed the research focus and keywords related to evaluating ELLs' metaphor use in each study. They further analyzed the prevalence and emphasis of these keywords across the eight articles by focusing on specific key terms within each study, examining their presentation and frequency of attention. The bar chart in **Figure 2** provides a

visual representation of the frequency of keywords related to metaphor use as found across eight articles that were reviewed.

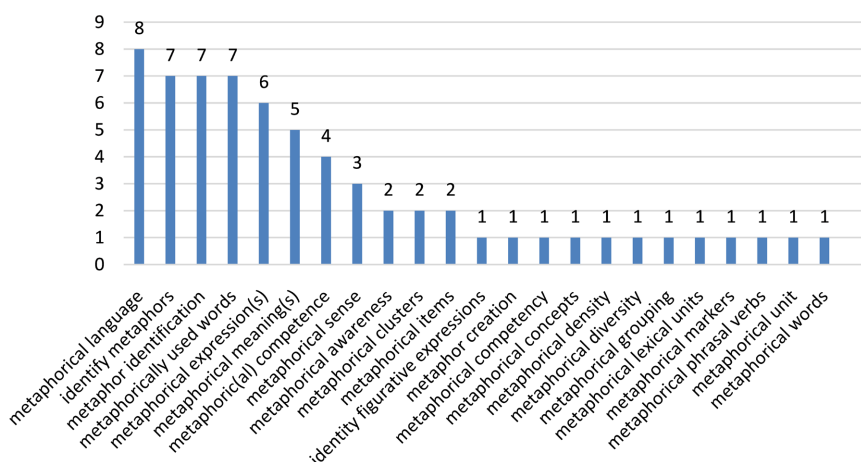


Figure 2. Frequency of keywords related to metaphor use across 8 articles reviewed.

As illustrated in the figure, the most frequently mentioned keyword is “metaphorical language” with a frequency of 8, indicating that all 8 articles discussed metaphorical language extensively. These keywords “identify metaphors”, “metaphor identification” and “metaphorically used words” appear 7 times, showing their prominence in seven of the reviewed articles as a key aspect of metaphor analysis and research. Subsequently, “metaphorical expression(s)” and “metaphorical meaning(s)” are mentioned 6 times and 5 times each, highlighting their importance in understanding metaphor use. Moderate frequency keywords of “metaphoric(al) competence” and “metaphorical sense” are respectively stressed across four and three articles, and “metaphorical awareness”, “metaphorical clusters”, and “metaphorical items” are discussed in two articles. Additionally, a range of other less frequent keywords appear only across one of the reviewed articles, including “identity figurative expressions”, “metaphor creation”, “metaphorical competency”, “metaphorical concepts”, “metaphorical density”, “metaphorical diversity”, and others, reflecting more specialized or less common areas of focus within the articles. The frequency distribution of keywords provides insights into the common areas of focus in the reviewed articles, revealing three relevant frameworks for addressing RQ1 in this section: 1) identification of metaphors through English writings; 2) measurement of metaphoric competence through English writings; 3) assessment of metaphor use through English writings. Meanwhile, the findings from the three frameworks help identify the gaps with respect to RQ1 and address RQ2.

4.1. Identification of Metaphors through English Writings

As illustrated in the bar chart in **Figure 2**, “identify metaphors” and “metaphor identification” are frequently mentioned keywords across the eight articles. *Low*

& Cameron (2002) emphasized that identifying metaphors is a crucial prerequisite for all valid research. In other words, applying this procedure helps metaphor teachers, researchers and evaluators determine the types, quantity, distribution, and appropriateness of metaphors in English writings. This will undoubtedly contribute to measuring ELLs' metaphoric competence and assessing their metaphor use based on the evaluation criteria.

Many scholars follow explicit methods like MIP and MIPVU to identify, interpret and analyze metaphorical language in English writing texts (e.g., Chen, 2020; Hoang & Boers, 2018; Low et al., 2008; Littlemore et al., 2014). **Table 1** shows that these recognition procedures facilitate both quantitative and qualitative analysis of metaphor use (Sanie Moghadam & Ghafar Samar, 2020) and are powerful tools for analyzing metaphorical languages (MacArthur & Alejo-González, 2024). Nonetheless, metaphor identification can be challenging due to the dynamic complexity of language use. Some adjustments to these procedures may be essential for applications beyond literary discourse (Low & Cameron, 2002). Thus, while MIP and MIPVU are useful for characterizing, identifying, and validating metaphor use, variations in specific application steps and methods are necessarily conducted depending on the research purpose.

It is worth reiterating that MIP and MIPVU are useful for identifying potential metaphors, but they cannot determine whether a metaphor is intentionally produced based solely on the texts (Littlemore et al., 2014). This limitation may affect the interpretation of metaphors used by English learners, as these methods might overlook the context and novelty of metaphor operations. Thereby, new dimensions should be proposed to complement MIP and MIPVU in assessing ELLs' metaphor learning performance through English writings.

4.2. Measurement of Metaphoric Competence through English Writings

It is pertinent to distinguish between metaphoric competence and metaphor learning performance, though they are closely related. Metaphoric competence is a central indicator of ELLs' metaphor learning performance and can guide the evaluation of metaphor learning achievements. A range of theoretical and empirical research have explored and examined the development of metaphoric competence in students' English writings and learning contexts (e.g., Gutiérrez Pérez, 2018; Kathpalia & Carmel, 2011; O'Reilly & Marsden, 2021). Notably, Gutiérrez Pérez (2018) highlighted the absence of idiom instruction in textbooks and teaching methods for translation and interpreting (English) students at a Spanish university and conducted an experiment to evaluate ELLs' metaphoric competence. The study included outcome tests, a post-verbal assessment, a final written test, and an anonymous questionnaire. The results indicated improvements in students' metaphoric competence, particularly in metaphorical language, conceptual understanding, and critical thinking skills. However, the final written test concentrated on evaluating students' metaphoric competence in terms of grammar,

vocabulary, and English usage, lacking a universal assessment criterion. This limitation implies that the tests may not be applicable for assessing ELLs' metaphoric competence in other contexts.

Furthermore, [Kathalia & Carmel \(2011\)](#) evaluated the metaphoric competence of ESL students by analyzing 113 written texts from five tutorial groups at Nanyang Technological University. These samples were class assignments in which students were required to write a speech on a specific topic. The study found that ESL writers struggled with the heuristic and imaginative functions of metaphor, which demands advanced language skills that may exceed the capabilities of mid-level ESL learners. Although students used a variety of grammatical, textual, illocutionary, and sociolinguistic metaphors in their writings, they often did not align with authentic language use and needed further development to achieve fluency as the target language. While the study demonstrated that metaphoric competence could be measured through students' ESL writing corpora, it lacked specific criteria for evaluating metaphorical competence, leading metaphor raters to rely on their own knowledge, which made the assessment somewhat subjective.

Building on [Littlemore & Low's \(2006\)](#) working, [O'Reilly & Marsden \(2021\)](#) developed the metaphoric competence test battery (MCTB) and applied it to 112 L1 Mandarin speakers of L2 English and 31 L1 English speakers. The MCTB includes nine tests that assess both receptive and productive skills through multiple-choice, gap-filling, rating scale (acceptability judgment), and other formats, with untimed written tests to reduce potential anxiety. However, the tests in MCTB have limitations, such as limited emphasis on metaphor production and impracticality due to its length (1.5 - 2 hours), making it challenging for use in schools without computer access. Hence, to bridge the gaps, there is an urgent need to develop simpler and more valuable methods to measure ELLs' metaphoric competence and evaluate their performance by employing English writings.

4.3. Assessment of Metaphor Use through English Writings

The pie chart in [Figure 3](#) shows the distribution of text sources used for the assessment of metaphor use across 8 articles reviewed. Texts of English writing tests include the writing samples collected from the General English Proficiency Test, Cambridge ESOL database of anonymized examination scripts and final written test. They occupy the largest portion, covering 37.5% of the total. Texts of English writing exercises entail samples of written texts and English essays. These represent 25.0% of the total. Texts from published English journals make up 12.5% of the data. While the texts of others cover 25% of the total, the academic discourse of the METCLIL corpus accounts for 12.5%, and the metaphoric competence test battery accounts for 12.5%. This pie chart shows that texts of English writing tests and exercises are the predominant sources in the analysis and assessment of ELLs' metaphor use, while other academic and corpus-based sources make up smaller proportions. The following section will elaborate on the evaluations of metaphors used in English writings in detail.

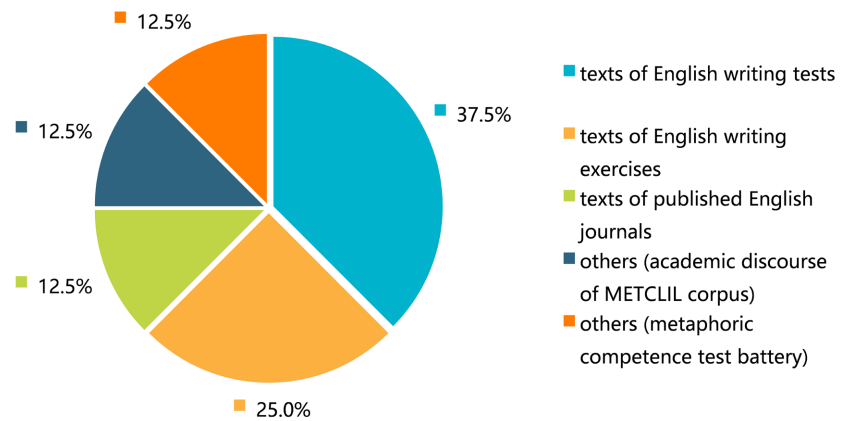


Figure 3. Distribution of text sources used for the assessment of metaphor use across 8 articles reviewed.

Academic papers often contain plenty of metaphors because metaphors can succinctly and concisely express complex ideas and make reading more engaging (e.g., MacArthur & Alejo-González, 2024, Saneie Moghadam & Ghafar Samar, 2020; Herrmann, 2013). Discourse analysis of English academic papers can reveal the types, quantity and quality of metaphors, assisting in the evaluation of writers' metaphor use. For instance, Saneie Moghadam & Ghafar Samar (2020) studied metaphors in 100 published medical research articles (50 by native English speakers and 50 by Iranian non-native speakers). The results showed that while the distribution of metaphors in tissue engineering and cancer articles was relatively stable, indirect metaphors were used more frequently than other types of metaphors. In addition, the findings indicated that certain source domains of metaphors are specialized for specific topics, while others are used more frequently by native English speakers than by non-native speakers. To integrate metaphors effectively into English for academic purposes, it is essential to comprehend their formal and functional attributes across academic domains, disciplines, and topics. Furthermore, combining manual and software analyses allowed researchers to identify numerous metaphors in texts. This study has implications for the identification and interpretation of metaphors in domain-specific academic writing. However, the study entailed certain limitations, as it focused solely on published academic articles and did not examine daily writing exercises in English. Nor did it address whether English learners differ in metaphor usage when writing on the same topic. Despite these limitations, the study offers potential insights by showing that ESL academic writing can reveal specific types and distributions of metaphors, indicating the feasibility of assessing individuals' metaphor operation through their English articles.

Various proficiency exams include sections that test ELLs' English writing skills. Analyzing metaphors through these corpora established in students' English writing of texts can yield valuable findings. For example, under the Common European Framework of Reference for Languages (CEFR), Littlemore et al. (2014) measured the number and distribution of metaphors used in 200 writings by

Greek- and German-speaking learners of English across different CEFR levels (A2, B1, B2, C1, C2), with 100 pieces from each language group and 20 pieces at each level. The study found that metaphor density progressively increases from A2 to C2 CEFR levels, with higher proficiency performing more complex metaphor use. Lower levels primarily used closed metaphorical items, mainly prepositions, while B2 and above could produce more open, conventional and creative open-ended metaphors, such as personified metaphors and clustered metaphors. The study addressed evaluating ESL learners' metaphor operation by focusing on metaphor clusters, densities, and types utilized across proficiency levels. This research offers significant insights for metaphor researchers and evaluators by showing that English learners at various language levels operate metaphors differently. These findings support the feasibility of creating evaluation dimensions for metaphor learning performance and developing metaphor writing rubrics. However, the analyses of metaphors used for the study lacked unified themes and topics, which may have influenced the findings. Additionally, the study did not emphasize the significance of creativity and contextual organization in operating metaphors through ELLs' English writings.

To address the inconsistency in compositional themes that possibly influenced metaphor analysis in the study of [Littlemore et al. \(2014\)](#), [Hoang & Boers \(2018\)](#) investigated whether high-level EFL learners use a higher density of metaphorical language in the same expository writing compared to low-level learners. In this study, essays were collected from 257 out of 396 Vietnamese undergraduate English majors, who were given 50 minutes in class to write at least 250 words on the same topic. The essays were then randomly distributed to teachers, with each paper evaluated independently by two teachers on a grading scale of 0-10. It was found that EFL students' writing ability was closely related to their use of metaphorical language. Specifically, the proportion of metaphorical language in essays positively correlated with students' year levels, writing proficiency, and assigned grades by the raters. Despite different tasks employed, the findings are consistent with [Littlemore et al. \(2014\)](#), showing advanced ESL learners use more metaphorical expressions in their essays than lower-level learners. Additionally, the research also complements that metaphorical language distinguishes metaphor writing performance both between and within groups of ESL learners with similar overall proficiency levels.

In short, it is feasible to adopt English writing discourse to assess the metaphor use among different English learners. This can be achieved by examining various corpora, such as published academic articles, written texts from English proficiency tests, or English composition exercises in daily study. Although there are some issues with existing methods for assessing metaphorical performance, these studies in this section provided valuable enlightenment for metaphor research. They outline a reference framework for developing a rating scale to evaluate ELLs' metaphor learning performance, including the proposal of reasonable dimensions and criteria for assessment.

5. Discussion

To bridge identified gaps in Section 4 and provide an additional answer regarding RQ1, address research aims and fully answer RQ2, the following five potential dimensions are discussed to enhance the evaluation of English learners' productive use of metaphor learning through their English writings. They are expected to further segment the discussion section, highlight key points, and underscore the underlying significance of being an objective benchmark to assess ELLs' metaphorical performance.

5.1. Identification of Metaphors Through ELLs' English Writings Should Highlight Metaphor Types and Clusters

Recognizing the application of MIP and MIPVU in metaphor identification within English writing in Section 4.1 demonstrates in practice that metaphor types and clusters serve as fundamental reference points for assessing metaphorical language and evaluating ELLs' metaphor learning performance. This is because a greater variety of metaphor operations signifies a richer range of metaphorical lexical units, metaphor types and clusters. As outlined by [Chen \(2020\)](#), the types and clusters of metaphors are the manifestation of richness of metaphorical expressions in ELLs' English writings. In other words, diverse metaphorical expressions used in English help distinguish English learners with varying levels of metaphoric competence and linguistic proficiency ([Hoang & Boers, 2018](#); [Littlemore et al., 2014](#)). It can be further interpreted that a broader range of metaphor types and denser metaphor clusters reflect better mastery and competencies in operating metaphors among ELLs. Moreover, identifying and determining the types and clusters of metaphors are closely linked to recognizing both linguistic metaphors and conceptual metaphors. Linguistic metaphors are lexical units that have a more fundamental meaning and are often grouped together in certain parts of texts. These metaphors serve predictable functions that facilitate metaphor learning. In contrast, conceptual metaphors are cognitive frameworks expressed through linguistic metaphors ([Cameron, 2003](#)). They represent abstract ideas, such as time, emotions, and feelings, in terms of concrete entities to improve understanding ([Lakoff & Johnson, 1980](#); [Ruiz de Mendoza Ibáñez & Pérez Hernández, 2011](#)). It can be argued that conceptual metaphors deal with the underlying relationships between concepts, while linguistic metaphors focus on the actual language used to express these relationships. Both types are equally crucial for the study, as they provide a better understanding of metaphorical language, including surface expression and underlying meanings in an ESL setting ([Kathpalia & Carmel, 2011](#)). While MIP and MIPVU help identify different types and clusters of metaphorical expressions and understand the diversity and frequency of metaphors in various English writings, it is crucial to consider certain contexts to evaluate the overall use of metaphors in written discourse. This contextual evaluation is key to assessing the quality and effectiveness of metaphor operation at an advanced level.

5.2. Measuring ELLs' Metaphoric Competence in Their English Writings Should Emphasize the Contextual Organization and Support of Metaphors

The concept and application of metaphoric competence have been previously explored in Sections 2.2 and 4.2. Along with understanding metaphors quickly, ELLs should prioritize their skills in producing them. In Section 4.3, it was discovered that the level and output of metaphor use can be assessed using various text materials, and the findings also highlight that metaphors do not exist in isolation but are conveyed through the contexts in which they are organized and supported. Littlemore et al. (2014) emphasized that evaluating English learners' use of metaphors should not rely solely on their quantity in English writings. Instead, it should consider the ELLs' intents and appropriateness in applying metaphorical elements within the texts. To be specific, it addresses whether contextual factors are effectively organized or created to enhance the understanding and comprehension of metaphors, achieve the intended functions, and attain the desired effects. According to Patton (2002), effective metaphors are typically easy to understand, relate to users' real-life experiences, convey the desired point of view, align with the audience's values, and fit the situation and context. However, many metaphors have been studied in isolation, with limited attention to their communicative functions or their use in specific discourse contexts (MacArthur & Alejo-González, 2024). Kövecses (2015) observed that metaphor conceptualizers often depend on numerous contextual factors that contribute to developing and understanding metaphorical representations. A well-constructed context is essential for the clarity of metaphor interpretation and effective metaphor learning accomplishments. Specifically, contextual factors include "situational contexts", which entail physical, social, and cultural dimensions observable in English writings when metaphorical conceptualization occurs. Additionally, discourse context, conceptual cognitive context, and bodily context must also be examined. Conceptually, understanding metaphors involves identifying metaphors in conventional expressions and recognizing visual, verbal, or auditory metaphors, or a combination of these three (Littlemore & Low, 2006). However, metaphorical expressions alone do not fully reflect the depth of metaphorical learning, or the quality of metaphors perceived in English writings (Hoang & Boers, 2018). Thereby, multiple contextual supports are essential to elucidate metaphorical units and elaborate on their metaphorical connotations in English writing. For students learning English as a lingua franca or foreign language, effectively using metaphors across various contexts is crucial for expressing their identity and culture and for facilitating communication in international settings (Kathpalia & Carmel, 2011).

5.3. Assessing ELLs' Metaphor Use in Their English Writings Is Essential for Underlining the Creativity and Originality of Their Metaphors

The creativity and originality of metaphors are key elements in evaluating learners'

innate capacity to generate metaphorical expressions. As elaborated earlier in Section 4.3, highlighting creativity and uniqueness in metaphors can help bridge the gaps identified in prior research. Creativity in metaphor production depends on imagination and originality, embodying characteristics such as novelty, uniqueness, and value. Littlemore (2001) describes originality in metaphor production as the ability to generate non-traditional metaphors. In the book *Metaphor in Culture: Universality and Variation*, Kövecses (2005) differentiates two types of creativity: one based on the source domain and the other based on the target domain. Likewise, Oswald & Rihs (2014) highlight that novel metaphors differ from traditional ones in two key ways: they use less commonly chosen features and deliver unexpected conceptual attributes. The novelty of metaphors requires receivers to use conceptual attributes in new ways to understand these innovative metaphorical representations. Furthermore, Kövecses (2015) identifies several types of metaphorical creativity in discourse. These include source-induced creativity, where new elements from existing source domains are applied to target domains; target-induced creativity which involves utilizing elements of the target domain that were not originally part of compositional mappings, finding counterparts in the source domain; creativity from conceptual integration that involves combining elements from both source and target domains in new ways; and context-induced creativity which occurs when various contextual factors lead to the creation of new or unconventional metaphors. For authentic discourse research in English writing, these types of creativity can reveal whether learners demonstrate creativity and originality and introduce new domains of information and perspectives. This approach also reflects how English learners use metaphors to express novel ideas and engage with metaphorical language innovatively. In this case, when evaluating English learners' metaphorical creativity, raters should ensure that the attributes of lexical units chosen by ELLs are unique, novel and not easily accessible in the source and target domains. The uniqueness and novelty should contribute to the effective expression of the conceptual connotations intended by the ELLs. This helps to assess whether the learners effectively express their intended conceptual connotations through creative and original metaphorical expressions. It can be argued that novel metaphors embody creativity in language use, as they involve metaphorical operations that are rarely processed (Oswald & Rihs, 2014). Consequently, when evaluating ELLs' metaphor learning achievements, raters should accurately capture the uniqueness and originality of metaphors and include creativity and novelty in the assessment criteria across various contexts.

5.4. The Complexity and Combination of Metaphors Serve as Crucial Indicators for Evaluating Metaphor Learning Performance among ELLs in Their English Writings

In discussions of articles related to assessing ELLs' metaphor use in English writings, it was found that both the complexity and combination of metaphors require special attention, as highlighted in Section 4. Both compound metaphors and extended metaphors are manifestations of complex metaphors and can be

used to gauge ELLs' metaphor learning outcomes. Specifically, compound metaphors combine basic metaphors, gathering and grouping primary metaphors with similar elements (Ruiz de Mendoza Ibáñez & Pérez Hernández, 2011). When applying complex metaphors in English writings, English learners must integrate multiple source and target domains and conceptual levels to convey meanings effectively. These complex metaphors allow ELLs to make comparisons between topics and stimulate their imagination and deeper thought. Besides, adding more layers to the complexity of metaphors can enhance associative thinking, making writing more challenging and engaging. This complexity and mixture of metaphors enriches metaphorical thinking, boosts cognitive processes, and increases both achievement and enjoyment in interpreting and operating metaphors in English writings. Moreover, assessing ELLs' use of extended metaphors across multiple conceptual levels and over longer text spans can provide a clearer indication of their metaphorical proficiency and command of figurative language. Consequently, these considerations allow for a gradual interpretation of metaphors, where different properties of the source domain emerge sequentially within the discourse, progressively enriching the representation (Oswald & Rihs, 2014). When evaluating metaphorical complexity and combinations in English writing, researchers should avoid the superficial illusion that the complexity necessarily entails long sentences, dense structures, and numerous images. Instead, the emphasis should be placed on the reflective relevance, the density of interwoven images, and the generation of multiple aesthetic spaces and references through metaphorical expressions. Additionally, evaluating metaphorical complexity in English writing involves considering the blend of various metaphors, along with the contexts within specific discourses and sentence patterns. The complexity and combination of metaphors in English writing reflects the cognitive ability of ELLs and serve as one of the key gauges of their proficiency in metaphor usage. Thereby, they should be involved as a crucial benchmark and reference for evaluating ELLs' performance in metaphor mastery.

5.5. Conventional Aspects, Such as Grammar, Spelling, and Lexical Expression, Also Deserve Close Attention from ELLs When Evaluating Metaphorical Performance in Their English Writings

Research has identified a correlation between metaphor use and language proficiency, which involves the perception and application of linguistic forms such as grammar, word spelling, and lexical collocations. For instance, a closer examination of data in Section 4.3 reveals that the ability to use metaphors and the number of metaphorical expressions is positively correlated with EFL teachers' assessments of students' writing performance, especially when metaphorical expressions adhere to English grammatical conventions (Hoang & Boers, 2018). This correlation can be attributed to the fact that using accurate metaphorical language

requires learners to demonstrate their understanding of written forms, extended word meanings, and the syntactic patterns of words used in these extended contexts. Typical grammar issues, such as lexical collocation mismatches, spelling errors, and improper tenses, and more can affect the comprehension of metaphorical expressions. Cameron & Deignan (2006) note that linguistic metaphors, particularly when expressed through fixed and semi-fixed phrases, are often associated with specific linguistic, conceptual, and pragmatic features. This implies that ELLs' mastery of traditional language proficiency skills affects both the production of linguistic metaphors and the comprehension and expression of conceptual metaphors. Moreover, the capacity to process and interpret metaphors is closely linked to the language proficiency of EFL and ESL learners. Typically, proficient English users often process metaphors more automatically due to their extensive exposure to prefabricated metaphorical expressions in the language (Kathpalia & Carmel, 2011). In addition, the mastery of metaphors use has been elaborated to correlate with various levels of English proficiency, as defined by CEFR (Littlemore et al., 2014). Consequently, when assessing English learners' metaphor learning performance, it is essential not to overlook traditional factors such as grammar, spelling and lexical collocations, etc. These elements should be emphasized, as they significantly impact the effectiveness and appropriateness of metaphor generation and usage across diverse settings.

In brief, the metaphor types and clusters are fundamental for evaluating ELLs' metaphorical performance. In addition, creativity, novelty, complexity and combination of metaphors provide deeper insights into individuals' metaphor operations. Meanwhile, contextual organization and support for metaphors offer researchers a comprehensive view of assessing the effectiveness of metaphor applications across diverse contexts. It is also essential to address that metaphorical performance should be integrated with ELLs' foundational linguistic proficiency, including correct grammar, spelling, and lexical collocations. In a word, when assessing ELLs' metaphor learning performance through English writings, it is imperative to value these dimensions, follow the dimensional guidelines and examine their validity and reliability in practice with further research.

6. Conclusion and Pedagogical Implications

In summary, a review of relevant literature reveals that ELLs' metaphoric competence and metaphor use can be assessed through their English writings. Additionally, linguistic metaphors, conceptual metaphors, metaphor clusters, and metaphor densities can be identified using MIP, MIPVU, or other metaphor identification procedures. In fact, ELLs' metaphor learning performance encompasses not only the quantity and proportion of metaphorical words but also the innovation, complexity, and consistency of metaphor operation within appropriate contexts, alongside other conventional linguistic factors. The dimensions proposed in this research are expected to effectively facilitate both summative and formative assessments of ELLs' metaphor learning performance through their English writings.

The study presents several pedagogical implications for the fields of English writing and metaphor studies, English education, and future research. Firstly, it enhances literature in these fields by demonstrating that English writings can effectively measure ELLs' metaphoric competence and assess metaphor learning when appropriate dimensions and criteria are established and validated. The study proposes dimensions for developing rubrics for assessing metaphor writing, providing valuable guidelines for metaphor researchers, teachers, and learners in evaluating metaphor use through ELLs' daily English writing, using MIP and MIPVU as foundational tools. Secondly, metaphors should be integrated into the English syllabus, curricula and mainstream of ELF pedagogical activities in a global context. It is noted that the performance of metaphor use can be measured and assessed not only through English writing but also possibly by listening, speaking, and reading. Thus, English teachers should recognize the pervasiveness of metaphors, their importance in language learning, and intimate relationship with ELLs' language proficiency and communicative ability. By incorporating metaphors into English lessons, teachers can help ELLs understand metaphorical concepts, develop metaphoric competence and thinking, and enhance their practical use of metaphors. Thirdly, changes in ELLs' mastery of metaphors can be longitudinally tracked through metaphor instruction by using evaluation dimensions proposed in this study. The effectiveness of metaphor training intervention can be assessed through pre-tests and post-tests, providing valuable insights into metaphor learning outcomes and allowing for monitoring the learning process and adjustments to teaching plans. These efforts are beneficial for promoting the popularization and advancement of professional metaphor teaching. Besides, these measures can expand the influence of metaphor teaching and highlight its significance and application in university pedagogical activities. Lastly, more attention should be attached to the assessment of ELLs' metaphor learning performance from an interdisciplinary perspective. For instance, psychological variables such as metacognition and self-efficacy have yet to be explored but may influence ELLs' cognitions and beliefs in their capacity to execute metaphor learning plans, reflection and accomplishments. Investigating the correlation between metaphor learning performance, metacognition, and self-efficacy is also a valuable area for further research.

7. Research Limitations

There are relatively few studies on evaluating ELLs' metaphor learning performance through English writings, resulting in a limited number of review articles. Consequently, the viewpoints and findings reviewed might have restrictions, and their conclusions might not be extended to all contexts of metaphor assessment through English writing. For example, this study is conducted within the context of English as a Lingua Franca. As more studies are conducted and new findings emerge, future research should focus on assessing ELLs' metaphor learning in more specific pedagogical contexts, such as ESL or EFL settings. Additionally, the

dimensions proposed for possibly creating a metaphor writing assessment rubric have not yet been examined in practice. Their internal consistency, reliability, and validity should be further explored through quantitative or qualitative empirical studies. Despite these limitations, this study is significant for pioneering the formulation of dimensions and establishing a foundation for evaluating English learners' metaphor learning performance across diverse English writings.

Acknowledgements

The authors would like to thank the editor and anonymous peer reviewers for their comments and suggestions on this article.

Conflicts of Interest

No potential conflict of interest was reported by the authors.

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