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Construction of Integrated Idiomatic Metaphorical Competence Development Model and Implications for Second Language Acquisition

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Abstract: *Metaphorical competence, as a core cognitive dimension of second language acquisition, directly affects learners' deep vocabulary acquisition, discourse construction quality, and cross-cultural communication competence. However, its development process is dynamically constrained by multiple factors such as language proficiency, cognitive style, cultural schema differences, and neural plasticity. The Integrated Idiomatic Metaphorical Competence Development Model (IIDMC) based on interdisciplinary literature integration reveals that this ability presents a four-dimensional structure of original output, explanatory fluency, meaning extraction rate, and polysemy processing, and achieves multimodal representation and creative application through nonlinear dynamic interaction. This model emphasizes the three-dimensional collaborative mechanism of neural, cognition and context, providing a scientific framework for innovation in second language teaching. In the future, it is necessary to integrate eye movement and EEG multimodal assessment technology and explore immersive training paths driven by artificial intelligence and mixed reality to build a personalized intelligent learning ecosystem.*

Keywords: *second language acquisition, metaphorical competence, model building*

1. Introduction

Metaphorical competence, as a core component of second language acquisition, has attracted more and more attention in the field of cognitive linguistics in recent years. Studies have shown that metaphor is not only a rhetorical means of language expression, but also a basic way for human cognition of the world [1]. However, second language learners often face difficulties in metaphor understanding and production, and their development level is significantly different from that of native speakers. Existing studies have pointed out that the cultivation of metaphorical competence not only depends on the accumulation of linguistic knowledge, but also needs to combine cognitive strategies and cultural awareness [2]. Therefore, improving metaphorical competence has multiple values for foreign language learning. Metaphorical competence is an important indicator of comprehensive language competence, which directly affects learners' vocabulary expansion, discourse construction and cross-cultural communication. Metaphor, as a cognitive tool, can help learners establish connections between concepts and promote the development of deep learning and critical thinking. In addition, studies have confirmed that metaphorical competence is closely related to academic writing ability, especially in argumentation texts, where appropriate use of metaphor can enhance the persuasiveness of arguments [3]. Therefore, attention to the application of metaphorical competence in second language learning has always been a topic of concern.

Therefore, from the perspective of teaching practice, the cultivation of metaphorical competence should be included in the language curriculum system. Empirical research shows that systematic teaching based on conceptual metaphor theory can effectively enhance learners' metaphorical awareness [4]. In addition, the design of differentiated teaching strategies for learners with different language levels can optimize the learning outcome, especially in the intermediate and advanced stages. The improvement of metaphorical competence is crucial for language application in academic and professional scenarios [5]. In general, the inclusion of metaphorical competence in the language curriculum system not only helps to achieve the cognitive goals of language teaching, but also provides an effective way to cultivate cross-cultural communication competence in the context of globalization.

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2. Theoretical framework and multidimensional analysis of metaphorical competence

As the core competence of language and cognition, the development of metaphorical competence is influenced by language level, cognitive strategy and cultural factors, and plays a key role in vocabulary expansion, discourse construction and cross-cultural communication in second language acquisition.

2.1 Conceptual definition and cognitive dimension of metaphorical competence

Metaphorical competence, as a key element in language learning and application, has been widely discussed in academic circles. According to the study, metaphorical competence can be analyzed from four dimensions: originality of metaphor generation, ability to interpret metaphorical meaning, speed to interpret metaphorical meaning, and fluency of metaphorical interpretation [6]. This four-dimensional model provides a solid theoretical foundation for further understanding of metaphorical competence. From a cross-cultural perspective, the research on Uzbek English learners further divides the receptive metaphorical competence and emphasizes its important role in second language learning [7]. At the same time, metaphorical competence has both linguistic and cognitive linguistic attributes. In the field of linguistics, it involves the recognition, understanding and application of metaphorical language expressions. From the perspective of cognitive linguistics, metaphorical competence is embodied in the individual's cognitive construction and mapping of conceptual metaphor. Therefore, metaphor is not only a linguistic phenomenon, but also an important way for human beings to perceive the world. Learners need to master the metaphorical thinking mode in the target language in order to achieve deep language acquisition.

2.2 The neurocognitive mechanism basis of metaphorical competence

The neural basis of metaphor processing provides important clues to the development of metaphorical competence. Studies have shown that metaphor comprehension involves the synergistic action of multiple brain regions, such as the prefrontal cortex and temporal lobe [8]. These brain regions play a key role in semantic integration and concept mapping. Children show certain signs of the development of metaphorical competence in the early years. Marschark and Nall (1985) believe that although children's performance in metaphorical interpretation and comprehension tasks improves with age, the early creative language use contains the germination of metaphorical competence. It is noteworthy that people with autism spectrum disorder (ASD) have significant differences in metaphorical cognition. Mashal and Kasirer found through their research on children with ASD that they performed poorly in metaphorical comprehension tasks, especially in suppressing irrelevant information. This may be related to the abnormal neural connections in the brain of ASD patients, and the function of the right middle temporal gyrus and other regions in metaphor processing is impaired, which affects the effective interpretation of metaphorical meaning.

2.3 Cross-cultural differences in the development of metaphorical competence

Mother tongue culture plays an important role in the development of metaphorical competence, profoundly influencing the way and effect of conceptual mapping. There are significant differences in learners' understanding and use of metaphor under different cultural backgrounds. Taking Uzbek and Greek learners as an example, Uzbek English learners' metaphorical competence is closely related to their English proficiency, and intermediate level learners show unique advantages in metaphorical comprehension. Galantomos (2019) 's study on Greek learners shows that gender and language level have a significant impact on metaphorical use. Females use metaphors more frequently, and advanced learners have stronger metaphorical use ability [9]. This difference stems from the unique way different cultures encode and decode concepts. The images and values in mother tongue culture give different cognitive weights in the process of metaphor comprehension and generation. For example, specific images and symbols in some cultures have unique symbolic meanings in metaphorical expressions, and learners need to deeply understand these cultural connotations to accurately grasp the meaning of metaphors. Therefore, taking the influence of mother tongue culture into full consideration is helpful to improve learners' metaphorical competence in second language acquisition.

3. Analysis of influencing factors of metaphorical competence development

Cognitive style shapes metaphor creation mode, language level nonlinearity influences metaphor

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understanding, and neuroplasticity supports metaphor acquisition through mirror neuron mechanism and cross-modal integration.

3.1 Mechanism of cognitive style differences on metaphor output

As a stable way of individual information processing, cognitive style has a significant impact on metaphor output. Individuals with holistic cognitive style tend to grasp information as a whole and pay attention to the correlation and integration of things. Individuals with a sequential cognitive style are better at processing information sequentially, focusing on details and steps. In terms of metaphorical output, these two cognitive styles show different creative performance. Those with holistic cognitive styles are more creative in metaphor generation. They can quickly capture the potential connections between different concepts, break the conventional thinking mode, and generate novel and unique metaphorical expressions. For example, in literature, writers with a holistic cognitive style often create imaginative metaphors that make their work more appealing. In contrast, the metaphorical output of the sequential cognitive style is more traditional and pays more attention to logic and accuracy. In the process of metaphor generation, they will follow certain rules and steps to ensure the rationality of metaphor expression. There are also differences in the frequency of metaphor use under the gender role hypothesis. Galantomos (2019) 's study on Greek learners found that women use metaphors more frequently. This may be related to social and cultural factors. Women tend to be more emotional and visualized in language expression. Metaphor, as a vivid way of language expression, is more in line with women's language habits. Men, on the other hand, are relatively less likely to use metaphors, but they may have more advantages in the complexity and depth of metaphors.

3.2 The nonlinear relationship between language level and metaphor comprehension

There is no simple linear relationship between language level and metaphor comprehension. Intermediate level learners often have unique advantages in metaphor comprehension. Intermediate level learners have mastered certain language knowledge and skills, and have the basic ability to understand metaphor. At the same time, they have not yet formed a fixed linguistic thinking mode, and are more open and sensitive to new metaphorical expressions. The study further reveals the phased characteristics of language level and metaphor comprehension. Due to their weak language foundation, elementary learners have great difficulty in understanding metaphor, and can only understand some simple and straightforward metaphors. Although advanced level learners have strong language ability, they may be limited by the influence of native language thinking, and their understanding of some cultural metaphors is not accurate enough. Intermediate level learners have a better balance between these two aspects and can understand the meaning of metaphor more effectively. In addition, explicit teaching can promote the understanding of complex constructions. Through systematic teaching, learners can understand the structure and function of metaphor and master the strategies and methods of metaphor comprehension. For example, teachers can guide learners to analyze the noumenon and metaphor in metaphors to help them understand the mapping relationship of metaphors. This kind of explicit teaching is helpful to improve learners' comprehension of complex metaphorical constructions and promote the development of metaphorical competence.

3.3 Neuroplasticity in metaphor acquisition

Neuroplasticity provides the physiological basis for metaphor acquisition, and the cross-modal activation mechanism of mirror neuron system plays an important role in metaphor acquisition. The mirror neuron system can be activated when an individual performs an action, observes the action of others and understands the language, so as to realize the cross-modal integration of action, vision and language information. In metaphor acquisition, the cross-modal activation of the mirror neuron system helps learners to associate physical experience with linguistic concepts and promote the understanding of metaphorical meaning. At the same time, the synergistic effect of gesture metaphor and language metaphor further reflects the role of neuroplasticity in metaphor acquisition. Gesture, as a kind of non-verbal sign, can enhance the vividness and image of language expression. In metaphorical expression, gesture metaphor and language metaphor cooperate with each other to convey the meaning of metaphor. For example, when expressing "seize the opportunity", the speaker may make the gesture of reaching out and grasping. This synergistic effect between gesture metaphor and linguistic metaphor helps learners to better understand the connotation of metaphor. In addition, dysfunctions of the right middle temporal gyrus affect metaphor acquisition in autistic patients. The right middle temporal gyrus plays an important role in metaphor processing and can participate in semantic integration and concept

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mapping. Due to the impaired function of the right middle temporal gyrus, autistic patients have difficulties in metaphor comprehension and generation. It is difficult for them to understand the abstract concepts and implicit meanings in metaphors, and their metaphorical expressions are more rigid and simple.

4. Construction of integrated Metaphor Competence Development Model (IIDMC)

4.1 Cognitive filtering mechanism at the dynamic interaction level

In the process of the development of metaphorical competence, the interaction between linguistic input and individual cognitive style is very important. Language input provides material for the development of metaphorical competence, and individual cognitive style determines the processing of these materials. In the face of rich language input, individuals with holistic cognitive style are more inclined to grasp the overall meaning of metaphor from the macro level, and can quickly identify the correlation between different metaphors. Individuals with sequential cognitive style will carefully analyze each metaphorical element in the language input and understand it in a certain logical order. This interaction forms a dynamic cognitive filtering mechanism in which individuals filter and process language input according to their own cognitive style.

The context-weighted parameters of selective attention also play a key role in this mechanism. Different contexts will make individuals pay different attention to metaphorical information in language input. In formal academic contexts, individuals may pay more attention to the accuracy and logic of metaphors. In the context of daily communication, the vividness and interest of metaphor are more important. O'Reilly & Marsden's empirical research finds that when context emphasizes creativity, individuals will show higher flexibility in metaphor understanding and generation, break through conventional cognitive patterns, and produce more innovative metaphorical expressions []. This indicates that context weight parameters can regulate the cognitive filtering process of individuals and make the development of metaphorical competence more in line with the actual needs.

4.2 Conceptual integration path of multimodal representation layer

The neural coupling between visual and linguistic modes provides an important approach to conceptual integration in the development of metaphorical competence. Neuroscience research has shown that there are certain neural overlapping regions in the brain when processing visual information and language information, which makes the visual and language modes influence and complement each other. When learners see an image with metaphorical meaning, the brain will automatically associate the visual information in the image with the existing linguistic concepts, thus promoting the understanding of metaphorical concepts. The effect of neural coupling was further confirmed by mirror neuron activation experiments. Experiments have found that when individuals observe actions or scenes related to metaphors, the mirror neuron system will be activated, and the language region of the brain will also produce corresponding responses [10]. This indicates that the mirror neuron system plays a bridging role in the integration of visual and linguistic modes, which can transform visual experience into linguistic expression and promote the formation and development of metaphorical concepts.

The adaptive adjustment mechanism of cultural cognitive theory is also indispensable in the conceptual integration of multimodal representation layer. Under different cultural backgrounds, the metaphorical meanings contained in visual symbols and linguistic expressions are different. Learners need to adjust multi-modal information according to their own cultural and cognitive background. For example, in some cultures, red symbolizes luck and happiness; In other cultures, red may represent danger or warning. Only by understanding and adapting to these cultural differences can learners accurately integrate the metaphorical concepts in multimodal information and realize the effective development of metaphorical competence.

4.3 Evaluation index system of creative application layer

It is very important to construct a scientific and reasonable evaluation index system to measure the creative application of metaphorical competence. Original output is one of the important dimensions of the assessment, which reflects the learners' ability to break through the convention and create novel metaphorical expressions in the process of metaphor generation. A highly original metaphor can add a

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unique charm to the language expression and make the message more vivid. Fluency of metaphorical interpretation is also a key indicator, which reflects learners' ability to understand and interpret metaphorical meaning. Learners who can interpret metaphors fluently and accurately indicate that they have a deep understanding of metaphor concepts. Among them, cognitive oriented teaching results provide useful reference for the construction of evaluation index system. Through cognitively oriented teaching, learners have a significant improvement in both the original output and interpretive fluency of metaphors. This shows that reasonable teaching methods can promote the development of metaphorical competence, and also provides practical basis for evaluating the effectiveness of indicators.

The automatic recognition of metaphorical usage patterns provides a new approach to assess metaphorical competence. The use of artificial intelligence technology can analyze the language expression of learners and automatically identify the metaphorical usage patterns. This technique can assess learners' metaphorical competence quickly and accurately, and provide timely feedback for teaching and learning. Through the analysis of metaphorical usage patterns, we can also find out the problems existing in learners' metaphorical application and make targeted improvements.

5. The application of metaphorical competence model in teaching

Based on the Integrated Metaphor Competence Development Model (IIDMC), this paper systematically reveals the dynamic mechanism and intercultural acquisition path of L2 metaphorical competence development through longitudinal tracking research, cognitive-oriented teaching strategies and multi-dimensional assessment tool innovation.

5.1 Longitudinal tracking research and cross-language development trajectory

In order to investigate the development of metaphorical competence, it is necessary to design a longitudinal follow-up study that includes the variables of mother tongue transfer and acculturation. Native language transfer is an important factor in second language acquisition, and learners' native language knowledge and language habits have an impact on metaphor comprehension and generation. Acculturation involves the learner's cognition and integration into the target language culture, which also affects the development of metaphorical competence to a large extent [11]. Therefore, the mechanism of native language transfer and acculturation can be clearly observed through long-term tracking of learners' metaphorical competence performance at different stages. Among them, eye tracking technology has a significant advantage in the multimodal assessment of metaphorical competence. This technique can record the eye movements of learners when they process metaphorical information in real time, reflecting their attention allocation and information processing. For example, when reading texts containing metaphors, eye tracking can reveal indicators such as learners' fixation time and fixation times on metaphorical parts, so as to further understand their comprehension difficulty and processing strategies of metaphors. Compared with traditional assessment methods, eye tracking technology provides more objective and detailed information, which helps to comprehensively evaluate learners' metaphorical competence.

In addition, corpus construction plays an important role in revealing the law of metaphor acquisition. By collecting a large number of learners' language samples and constructing a metaphor corpus, we can systematically analyze the use frequency, type distribution and development trend of metaphor. The data in the corpus can intuitively show the change of learners' metaphorical competence in different learning stages, and provide strong support for teaching and research. At the same time, the corpus can also be used to compare the metaphorical acquisition of learners from different language backgrounds to further explore the influence of mother tongue transfer and acculturation.

5.2 Classroom implementation strategies of cognitive-oriented teaching methods

The integration of conceptual metaphor theory and project-based learning provides an innovative approach to the cultivation of metaphorical competence. Conceptual metaphor theory emphasizes that metaphor is the basic way of human cognition of the world, and metaphor expression in language reflects the mapping relationship between concepts. Project-based learning takes actual projects as the carrier, allowing learners to use knowledge and skills in practice. By combining the two, teachers can design project tasks related to metaphor and guide learners to deeply understand and use metaphor in the process of completing the project. Among them, the curriculum design case provides a practical example for this integration [12]. In this case, the teacher takes "urban development" as the project

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theme and guides the students to use metaphors to describe the changes and development of the city. Through data collection, data analysis, and group discussions, students metaphorically map different aspects of the city with other concepts, such as metaphorizing the city's transportation system as the human body's blood circulation system. This project-based learning not only enables students to master the knowledge and skills of metaphor, but also cultivates their teamwork and problem-solving skills.

Therefore, the phased teaching framework for the cultivation of metaphorical awareness should be designed according to learners' language level and cognitive ability. In the primary stage, teachers can introduce the concept of metaphor through vivid and interesting examples, so that students can understand the basic form and function of metaphor. For example, by showing pictures and playing videos, students can intuitively feel the charm of metaphor. In the intermediate stage, teachers can guide students to analyze the structure and meaning of metaphor and develop their metaphorical understanding ability. In order to deepen their understanding of metaphor, students can be asked to fill in the blank and translate metaphors. In the advanced stage, teachers should encourage students to create metaphors and improve their metaphor-generating ability. Students can be organized to conduct metaphorical writing contests, metaphorical speeches and other activities to stimulate their creativity and imagination.

5.3 Innovative development of metaphorical competence assessment tools

Word association tests and metaphorical language games are effective tools to evaluate metaphorical competence. Word association tests are designed by giving a word and asking learners to associate it with metaphorical expressions. This kind of test can examine learners' metaphorical thinking ability and vocabulary application ability. For example, when given the word "time", learners may associate it with metaphorical expressions such as "time is money" and "time is a river". Metaphorical language games allow learners to use metaphors in a relaxed and pleasant atmosphere in the form of games. For example, the game of "metaphor solitarism," in which one person speaks a metaphor and the next person responds with another, can stimulate learners' interest and motivation, as well as assess their metaphor-generating ability. Among them, the two-dimensional measurement model provides a scientific theoretical framework for the assessment of metaphorical competence [13]. The model measures metaphorical competence from two dimensions: metaphor comprehension and metaphor generation, and can comprehensively and accurately evaluate learners' metaphorical competence. By measuring these two dimensions, we can find out learners' strengths and weaknesses in metaphorical competence, and provide targeted guidance for teaching and learning.

At present, the application of artificial intelligence in metaphor output analysis has a broad prospect. Artificial intelligence technology can analyze a large number of linguistic data, automatically identify metaphorical expressions, and evaluate the quality and innovation of metaphors. For example, using natural language processing technology, we can analyze the semantic similarity, structural complexity and other indicators of metaphor, so as to provide a more objective and accurate basis for the assessment of metaphorical competence. In addition, AI can provide learners with personalized feedback and suggestions to help them improve their metaphorical skills.

6. Conclusion and future research work

The interdisciplinary integration of neurolinguistics and pedagogy and the innovation of digital technology are reshaping the paradigm of metaphorical competence training: neuroimaging technology (such as fMRI) and neurofeedback training reveal the brain mechanism of metaphor cognition, providing scientific basis for precision teaching; The corbe-driven intelligent learning system, online dictionary integration and mixed reality technology build an immersive and personalized digital cultivation ecology, marking the transition of metaphorical competence development research from theoretical exploration to a new era of technology-enabled intelligent education.

6.1 Interdisciplinary integration of neurolinguistics and pedagogy

The interdisciplinary integration of neurolinguistics and pedagogy opens up a new way for the study of metaphorical competence. The innovative application of fMRI technology in teaching effect assessment provides the possibility for in-depth understanding of learners' metaphorical cognitive process. Through fMRI technology, the brain activity of learners in the process of metaphor learning can be monitored in real time, and the activation of different brain regions can be visually observed, so

ISSN 2663-8169 Vol. 7, Issue 4: 86-93, DOI: 10.25236/IJNDE.2025.070413

as to evaluate the actual effect of teaching methods on the improvement of learners' metaphorical competence. For example, by comparing the activation intensity and pattern of the brain areas related to metaphor processing in learners' brains under different teaching strategies, we can accurately judge which teaching method is more effective.

The model of children's metaphorical cognitive development proposed by Di Paola et al. provides an important reference for interdisciplinary research. This model comprehensively considers the neurodevelopmental characteristics and cognitive development rules of children, and describes in detail the developmental characteristics of children's metaphorical competence at different stages [14]. It is helpful for educators to design more targeted metaphor teaching programs according to children's actual development level and promote the healthy development of children's metaphorical competence. Based on these studies, neurofeedback training has a certain possibility in the cultivation of metaphorical competence. Neurofeedback training enables learners to understand their own brain activity in real time and adjust their brain activity through specific training methods to improve their metaphorical cognitive ability. For example, when learners are underactivated in a specific brain region during a metaphorical comprehension task, neurofeedback training is used to guide learners to enhance the activity of this region, thereby improving their metaphorical comprehension ability.

6.2 Cultivation model of metaphorical competence in the digital age

In the digital age, constructing a corp-based intelligent learning system framework is an important direction for the cultivation of metaphorical competence. The corpus contains a wealth of metaphorical language examples, and intelligent learning systems can make use of these data to provide learners with personalized learning content and feedback. For example, the system can automatically push appropriate metaphor learning materials according to learners' language level and learning progress, and carry out real-time assessment and correction of learners' metaphorical expressions. Among them, the application research of online dictionary by Campoy-cubillo (2022) provides useful reference for intelligent learning systems [15]. Online dictionaries can not only provide basic definitions of metaphorical words, but also show their use cases and metaphorical mappings in different contexts. The intelligent learning system can integrate the functions of online dictionaries and enable learners to have a more comprehensive understanding of metaphorical knowledge.

At the same time, mixed reality technology has the advantage of immersive teaching in the cultivation of metaphorical competence. Through mixed reality technology, learners can experience the scenes depicted by metaphors and enhance their understanding of metaphorical meaning. For example, when learning the metaphor "time is a river", learners can intuitively see the flow of a river through a mixed reality device, thus more deeply experiencing the passage of time. This kind of immersive teaching method can stimulate learners' interest in learning, improve the effect of metaphor learning, and enable learners to better enhance their metaphorical competence in the digital environment.

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References

[1] MARSCHARK, M and NALL, L. Metaphoric Competence in Cognitive and Language- Development [J]. Advances in Child Development and Behavior, 1985(19):49-81.
[2] Lindstromberg, S and Boers, F. From movement to metaphor with manner-of-movement verbs[J]. APPLIED LINGUISTICS, 2005,26 (2):241-261.
[3] Lu, QY. "Desire Is Like a Dreadful Monster": Analysis of Extended Metaphors in L2 Argumentative Essays by Chinese Learners of English[J]. Frontiers in Psychology, 2021, 12: article 803359.
[4] Martín-Gascón, B. The effects of cognitive-based instruction on figurative constructions comprehension and production: a case study[J]. PORTA LINGUARUM,2024(41) :97-117.
[5] Kim, Soon-Bok. Exploring the Relationship between Metaphoric Competence and Language Proficiency[J]. Foreign Languages Education, 2008, 15 (1):109-135.
[6] O'Reilly, D and Marsden, E. Elicited metaphoric competence in a second language: a construct associated with vocabulary knowledge and general proficiency[J].IRALINTERNA-TIONAL REVIEW

ISSN 2663-8169 Vol. 7, Issue 4: 86-93, DOI: 10.25236/IJNDE.2025.070413

OF APPLIED LINGUISTICS IN LANGUAGE TEACHIN,2023,61 (2):287-327.

[7] Nurmatova,, Manzura and Hwang, Kyu-Hong. Uzbek EFL Learners' L2 Receptive Metaphoric Competence and English Proficiency[J].The New Korean Journal of English Language & Literature, 2022,64 (4):199-216.

[8] Mashal, N and Kasirer, A. Thinking maps enhance metaphoric competence in children with autism and learning disabilities[J]. Research in Developmental Disabilitie,2011,32 (6): 2045- 2054.

[9] Galantomos, I. Gender and proficiency effects on metaphor use among Greek learners[J]. International Journal of Applied Linguistic,2019,29 (1) :61-77.

[10] O'Reilly, D and Marsden, E.Eliciting and Measuring L2 Metaphoric Competence: Three Decades on from Low (1988)[J].APPLIED LINGUISTIC, 2021, 42 (1) : 24-59.

[11] Martín-Gascón, B. Developing L2 learners' metaphoric competence: a case study of figurative motion constructions[J].IRAL-INTERNATIONAL REVIEW OF APPLIED LINGUISTICS IN LANGUAGE TEACHIN,2023,61 (1):79-109.

[12] Pérez, RG. The development of a metaphoric competence. A didactic proposal of educational innovation[J].INNOVATION IN LANGUAGE LEARNING AND TEACHIN, 2019, (4): 331-357.

[13] Chen, YC and Lai, HL. Developing EFL learners' metaphoric competence through cognitive-oriented methods[J].IRAL-INTERNATIONAL REVIEW OF APPLIED LINGUISTICS IN LANGUAGE TEACHIN, 2015,53 (4) :415-438.

[14] Di Paola, S; Domaneschi, F and Pouscoulous, N. Metaphorical developing minds: The role of multiple factors in the development of metaphor comprehension[J]. JOURNAL OF PRAGMATIC, 2020,156:235-251.

[15] Campoy-cubillo, M.C. and Esbri-blasco, M. Pedagogical Potential of Online Dictionaries in Metaphor and Idiom Language Instruction[J]. International Journal of Emerging Technologies in Learning, 2022:214-29.