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Fostering Figurative Thinking Through Motivated Vocabulary Instruction: A Case Study in Northern Kazakhstan

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ABSTRACT
In the contemporary educational setting, foreign language acquisition is increasingly viewed as a driver of cognitive and creative development. An essential component of this process is figurative thinking, that is, the capacity to establish metaphorical and associative links between diverse phenomena. Although theoretical research on lexical motivation and conceptual imagery is extensive, the systematic integration of these frameworks into school-level English Language Teaching (ELT) remains underexplored, particularly within bilingual settings. This study sets out the methodological foundations for fostering figurative thinking and develops an instructional system of exercises designed to strengthen the associative-figurative interpretation of metaphorically motivated lexis among school students. The research used a psycholinguistic experiment and a pedagogical intervention with a pretest-posttest design. The study included bilingual and monolingual students (N = 64). The experimental group (N = 32) completed a six-stage instructional program centered on the "inner form" of English words, while statistical significance was tested using Independent and Paired Samples t-tests, Cohen's d, and Pearson correlation analysis. Baseline assessments showed a statistically significant advantage for bilinguals in perceiving the inner form of words ($p = 0.004$, $d = 1.49$). After the intervention, the experimental group showed a substantial increase across all figurative-thinking indicators, with the largest growth in motivational reflection ($\Delta = +1.9$, $p < 0.01$, $d = 1.60$). Correlation analysis revealed a strong positive relationship ($r = 0.68$, $p < 0.01$) between awareness of a word's inner form and the creative quality of metalinguistic utterances. The findings support the efficacy of the motivological approach in ELT. The results indicate that systematic work with motivated vocabulary not only expands the lexicon but also reshapes cognitive interpretative strategies, strengthening metalinguistic reflection and cognitive flexibility in bilingual educational contexts.

KEYWORDS
Figurative thinking; education; inner form of the word; bilingualism; English Language Teaching (ELT); motivational reflection.

INTRODUCTION

Within the prevailing educational framework, foreign language acquisition *is treated* as a mechanism for the cognitive and creative development of the individual. Among the key components of this process, figurative thinking stands out, a form of mental activity that involves establishing analogies, metaphorical convergences, and comparisons based on similarities between heterogeneous objects and phenomena. The development of figurative thinking enables students to move beyond the literal perception of linguistic units toward a deeper, symbolic, and conceptual understanding, which markedly enriches speech activity and promotes cognitive flexibility (Candry et al., 2017; Eltaiba et al., 2025; Gaskins & Rundblad, 2023; Gaskins et al., 2024; Horvat et al., 2024; Littlemore & Low, 2006; Miao, 2023; Paivio, 1986).

The phenomenon of figurative thinking

The phenomenon of figurative thinking is an interdisciplinary issue located at the intersection of cognitive linguistics, psycholinguistics, lexicology, and foreign language teaching methodology. It is defined as the capacity to establish analogies, metaphorical convergences, and associative connections, allowing learners to move from the literal perception of a linguistic unit toward a deeper, conceptually and symbolically mediated understanding (Harley, 2013; Kövecses, 2010; Lakoff & Johnson, 2003; Littlemore & Low, 2006; Littlemore, 2023; Kroll et al., 2005; Sholl et al., 1995; Yurina, 2012).

Of particular importance for this study is Littlemore's model of figurative competence, comprising originality of production, fluency of interpretation, ability to find meaning, and speed of interpretation (Littlemore & Low, 2006; Littlemore, 2023). Two parameters are most relevant to this study: ability to find meaning, which corresponds to the cognitive aspect of the study, namely, perceiving the unit, linking form to meaning, and conceptualizing the underlying image; and ability to interpret figurative units, which corresponds to the psycholinguistic aspect, namely, explaining meaning, reconstructing the word's inner form, and verbalizing this process in metalinguistic utterances. Figurative thinking is thus treated both as a cognitive capacity for meaning recognition and as a psycholinguistic capacity for interpretation and verbalization.

In cognitive linguistics, figurative thinking is linked to conceptualizing experience through metaphor, image schemas, and conceptual mappings, with metaphor as a basic instrument of knowledge organization (Lakoff & Johnson, 2003; Kayıran, 2026; Kövecses, 2010; Harley, 2013): a linguistic unit is thereby connected not only to its direct meaning but also to a system of secondary meanings and associations. In psycholinguistics, figurative thinking is tied to inner speech, metalinguistic consciousness, and abstract semantic operations: understanding a figurative unit requires semantic anticipation, associative activation, and the interpretation of its inner form. For bilingual speakers, lexical processing draws on interconnected conceptual structures across languages, creating further conditions for metalinguistic reflection and semantic correlation (Kroll et al., 2005; Sholl et al., 1995). We follow Yurina's (2012) understanding of lexical imagery as the theoretical foundation for analyzing the inner form of

motivated vocabulary, consistent with Zhakupova et al.'s (2025a) account of motivational reflection as a system-forming cognitive mechanism.

In this study, figurative thinking serves as a pedagogical resource for the teaching of motivated vocabulary, including metaphorically motivated words such as rainmaker, wildfire, brainchild, butterfly, and skyscraper. The structure of such units supports meaning reconstruction through cognitive schemas, visual-associative links, and inner-form interpretation, promoting more flexible and reflective lexical acquisition strategies.

Teaching figurative vocabulary: research gap and hypotheses

Despite a strong theoretical foundation, the systemic integration of these models into English Language Teaching (ELT) methodology remains limited. Current pedagogical practice focuses mainly on surface-level techniques such as visualization, contextualization, and semantic guessing (Boers & Lindstromberg, 2008; Budiharso et al., 2026; Littlemore & Low, 2006; Nababan, 2020). However, these approaches often fail to engage the deeper mechanisms of motivational reflection required for a genuine understanding of the word's inner form.

This research gap is especially evident in bilingual educational environments. Although bilingual students display greater cognitive flexibility and sensitivity to cross-linguistic semantic connections (Danesi, 2022; Kroll & Bialystok, 2013), this potential remains underused as a methodological resource. The present study seeks to address this gap by proposing an integrative model that combines lexical motivation theory and cognitive-discursive approaches.

Hypotheses of the Study:

Hypothesis 1 (H1): Owing to their enhanced metalinguistic awareness, Russian-Kazakh bilingual students show a higher baseline level of motivational reflection and of figurative thinking in decoding motivated vocabulary than their monolingual peers.

Hypothesis 2 (H2): The implementation of a systematic, six-stage instructional model targeting the word's inner form produces statistically significant improvements in students' figurative thinking and in their motivational reflection within the experimental group.

Hypothesis 3 (H3): Increased awareness of the inner form of the word (motivational reflection) is positively associated with associative-visual mapping over literal interpretation.

THEORETICAL FRAMEWORK

The conceptual framework of this study rests on the integration of three convergent approaches: lexical imagery theory, lexical motivation theory, and a cognitive-discursive approach. These frameworks go beyond a purely descriptive role and serve an operational function, providing the methodological foundations for both the diagnosis and the systematic development of students' figurative thinking within the English language curriculum.

Lexical imagery theory

Grounded in lexical motivation theory (Blinova, 1983; Yurina, 1995, 2004, 2005; Yurina, 2014), imagery is examined as a systemic property linking a word's form and meaning through its motivational potential. Lexical motivation is defined as a structural-semantic property that

enables the recognition of the relationship between a word's form and its meaning, based on its correlation with reality (Yurina, 2014).Within this framework, imagery is operationalized as a subtype of lexical motivation, namely, metaphorical motivation, whereby meaning is constructed through indirect, analogy-based mappings rather than through direct reference. Accordingly, *hopeless* is semantically motivated by its constituent morphemes but remains non-figurative, whereas *prickly* or *thorny* (when used to describe a person) show figurative meaning by projecting physical attributes onto social or psychological traits.

Metaphorical motivation, whether purely semantic (conventional metaphors like *fox*) or morpho-semantic (derived lexemes like *sharp-witted*), is mediated by what Blinova (2010) describes as the word's inner form (IFW), a configuration linking form and meaning (Blinova, 1984). A cognitively accessible IFW supplies an imagistic cue for interpretation.

Consequently, figurative thinking represents a learnable resource for accessing metaphorical and metonymic senses through IFW interpretation. Following Yurina (2012), figurative meaning is modeled across denotational, associative-imagistic, and symbolic components, enabling the activation of multiple semantic layers. This layered structure aligns with Littlemore's model of metaphoric competence, which also distinguishes receptive from productive figurative processing (Littlemore, 2010, 2023): the denotational and associative-imagistic components correspond to the more accessible receptive levels, while the symbolic component approaches the productive, originality-oriented pole, reachable only with sufficient cognitive flexibility.

This model is pedagogically useful in that it provides a principled basis for designing instructional tasks aimed at motivated vocabulary. In the present study, students were explicitly guided to attend to the denotational, associative, and symbolic aspects of meaning (Mukhamejanov & Obdalova, 2025). Their interpretations of items such as *skyscraper* (e.g., "a building that reaches the sky", "a house that scrapes the sky") show that instruction supported the activation of multiple semantic layers and the development of figurative thinking.

Overall, imagery is treated not as a stylistic ornament but as a cognitive-semantic mechanism that can be used pedagogically to strengthen lexical comprehension and depth of vocabulary knowledge. This frames lexical imagery as a teachable resource rather than an incidental feature of language, with direct implications for how motivated vocabulary can be systematically built into foreign language instruction (Lazar, 2003).

Lexical motivation and metalinguistic awareness: a psycholinguistic perspective

The theory of lexical motivation (Yurina, 2018; Zhakupova et al., 2024) conceptualizes the IFW as a structural-semantic property that reflects the relationship between the sounds and meanings of the motivated and motivating words. The IFW is treated as a cognitively salient mechanism accessible to speakers' conscious awareness. Awareness of word motivation cannot be uncovered through purely linguistic analysis alone, but requires examination of speakers' linguistic and metalinguistic consciousness, typically through psycholinguistic experiments that record explanations and interpretations of word form and meaning (Zhakupova et al., 2024).

Metalinguistic awareness – defined as the ability to focus on linguistic form independently of meaning (Bialystok, 2001; Gombert, 1992; Jessner, 2006; Makena & Feni, 2023), is central to the present approach. Cognitive linguistics highlights the non-arbitrary nature of the form-meaning link; analysis of this "form-meaning fit" engages students in deep cognitive processing and strengthens lexical retention (Candry et al., 2017). In the present study, we operationalize this mechanism as "motivational reflection," i.e., the student's capacity to comprehend a word's IFW, establish form-meaning links, and verbalize them in metalinguistic statements (Yurina & Zhakupova, 2021).

Integrating lexical motivation, lexical imagery theory, and psycholinguistic methods offers a comprehensive framework for understanding and fostering figurative thinking in bilingual students (Yurina & Zhakupova, 2021). Lexical imagery clarifies the semantic and figurative dimension (Blinova & Yurina, 2008), lexical motivation accounts for its conscious apprehension through the IFW, and psycholinguistic methods allow empirical verification (Laufer & Hulstijn, 2001). This integration is further supported by Dual Coding Theory (Paivio, 1986), which explains the durability of motivated vocabulary through the creation of dual verbal and imagistic mental representations (Sadoski & Paivio, 2001). This framework guides the design of targeted exercises (Lazar, 2003) that stimulate awareness of semantic relations and metaphorical motivation, allowing the identification of individual lexical interpretation strategies (Yurina & Kazakova, 2014) and the development of figurative thinking and metalinguistic reflection in bilingual learning contexts.

The cognitive-discursive approach in language pedagogy

The present study is grounded in the theory of foreign language competence development within the cognitive-discursive approach (CDA). Rooted in the linguo-cognitive principle, CDA helps students interpret authentic discourse, extract implicit meanings, and consciously regulate communicative behavior (Obdalova, 2018; Koyanbekova et al., 2026). Within this framework, a word's inner form is treated as a dynamic functional element embedded in specific communicative contexts, cultural scripts, and genres.

Central to CDA are cognitive strategies that support active meaning construction (Fillmore, 1982) and higher-order operations such as conceptualization and goal-setting (Flavell, 1985; Holme, 2009). Learning effectiveness depends on the sequence of mental operations for receiving, storing, and retrieving information (Wenden & Rubin, 1987), which also supports the decoding of socio-cultural codes in intercultural contexts (Faerch & Kasper, 1983; Richards & Platt, 1992).

The novelty of this research lies in the integration of the motivological framework (inner form and motivational reflection), into CDA to foster figurative thinking. This integration enables students to move from the passive recognition of metaphorically motivated lexis to productive use, supporting metalinguistic reflection and cognitive flexibility in bilingual settings (Bialystok, 2011; Kharkhurin, 2017; Kroll & Bialystok, 2013). CDA thus provides the methodological basis

for organizing staged instructional settings, guiding the development of figurative thinking from the awareness of motivational links to their application in discourse.

METHODS

Research design

The study employs a quasi-experimental pretest-intervention-posttest design to examine the development of figurative thinking and motivational reflection. The research moved from a diagnostic stage (assessing baseline abilities in L1) to a pedagogical intervention, concluding with a control stage (assessing L2/L3 English vocabulary acquisition). A key methodological premise of this approach is that awareness of a word's motivation (motivational reflection) cannot be identified through purely linguistic analysis; it becomes accessible to research only through the elicitation and analysis of participants' metalinguistic utterances.

The study ran over two academic years and included a diagnostic assessment, a formative intervention built around a structured system of exercises targeting metaphorically motivated lexical units (Boers, 2004), a control assessment using the same instrument to track change, and subsequent quantitative and qualitative analysis with intergroup comparison and the interpretation of cognitive strategies (Mukhamejanov & Obdalova, 2025). To support the validity and reliability of the findings, several complementary methods was employed:

- Standardized testing structure: The diagnostic and assessment procedures draw on a standardized testing structure that was previously developed and validated in research on motivational reflection (Zhakupova et al., 2024), protected by an author's certificate, supporting the methodological soundness and reproducibility of the instrument.
- Validated assessment scale: The scale used to operationalize figurative thinking indicators was developed within the research strategy on motivational reflection (Zhakupova et al., 2024), and has been applied and validated in earlier studies.
- Content analysis: Applied to written and oral metalinguistic utterances in order to classify lexical interpretation strategies and identify qualitative changes in cognitive processing.
- Expert evaluation: Used during the data coding phase, in which student interpretations were analyzed by independent experts to minimize subjectivity.
- Mathematical and statistical analysis: Used for the quantitative assessment of figurative thinking levels and to test the statistical significance of differences between the experimental and control groups.

Overall, the study's validity and reliability rested on a coherent set of methodological decisions: a validated diagnostic instrument, a validated assessment scale, combined qualitative-quantitative analysis, and independent expert coding, enabling both the description of adolescents' baseline interpretative strategies and a well-grounded assessment of the changes following the intervention.

Participants

A total of 64 students (7th and 8th grades; EFL students since Grade 2, English proficiency (CEFR B1) was determined by the Oxford Online Placement Test and confirmed by the school's prior academic records) from Secondary schools in Kokshetau, Kazakhstan. Participants were assigned to an experimental group (EG; n = 32) and a control group (CG; n = 32), matched for age, proficiency, and socioeconomic status.

- Experimental Group (EG): 32 Russian-Kazakh bilinguals (ethnic Kazakhs) who attended Russian-medium schools. They used Russian as their primary language of communication while maintaining Kazakh as an additional language.
- Control group (CG): 32 Russian monolinguals (ethnic Russians and Ukrainians). Although they studied Kazakh as a mandatory school subject, they did not use it outside the classroom and identified Russian as their sole dominant language. Language dominance was further confirmed using a 60-second category verbal fluency task administered in each language, a widely used objective measure of relative language strength (Lezak et al., 2012) (Lezak et al., 2012).

Stimulus Materials

The stimulus material consisted of 60 motivated lexical units, specifically compound nouns and derivatives, characterized by a transparent metaphorical inner form. The dataset was split into two linguistically distinct blocks of 30 units each.

Block A: Russian lexical units (Diagnostic)

This block comprised 30 Russian words (e.g., *bieloruchka* [idle person], *podsolnukh* [sunflower], *volnolom* [breakwater], *oduvanchik* [dandelion], *golovolomka* [puzzle], *podnozhie* [foothill], *neboskreb* [skyscraper], *podsnezhnik* [snowdrop], *pronyra* [dodger], *dymokhod* [chimney] *etc.*). These units were used during the pretest stage to establish baseline levels of motivational reflection and figurative thinking in the students' dominant language (L1).

Block B: English lexical units (Control)

This block included 30 English words (e.g., *skyscraper*, *lawbreaker*, *butterfly*, *bookworm*, *brainchild*, *silver-tongued*, *barefaced*, *truthseeker*, *nightmare etc.*). These stimuli were presented during the posttest stage after the pedagogical intervention. The stimuli were selected based on the following parameters:

- Semantic transparency: a clear metaphorical link between morphological components and actualized meaning.
- Structural complexity: compounds and derivatives requiring active decoding of inter-morphemic relationships.
- Pedagogical alignment: alignment with 7th–8th grade curricula (CEFR A2–B1 levels) while incorporating unfamiliar units to induce "cognitive friction" and necessitate interpretive strategies.

The choice of languages for the experimental stages reflected a deliberate methodological design rather than an oversight (Yurina, 2005). For the participants in this study, English is a third language (L3), acquired through instructed (artificial) trilingualism, whereas

Russian serves as the dominant language (L1) in which students think and operate cognitively in everyday life. Motivational reflection, that is, awareness of the internal form and semantic motivation of a lexical item, is conceptualized as a general cognitive-linguistic ability rather than a language-specific skill, and by definition cannot be diagnosed in a language that the learner does not yet command: at the L3 stage, prior to instruction, students' English proficiency is too limited for them to access or articulate the internal motivation of English lexical units, so an English pretest would tap existing vocabulary knowledge rather than the ability itself, thereby conflating the construct under investigation with general L3 proficiency. For this reason, the ability was first diagnosed in the dominant language (Russian), confirming its presence in students independently of their English proficiency; however, the ability itself is not confined to L1; once established, it can be deliberately used as a pedagogical tool in foreign language instruction, supporting vocabulary acquisition, increasing learner engagement, and expanding productive vocabulary. Accordingly, the English-language posttest was administered not to verify the prior existence of motivational reflection in English (which would have been invalid at the outset), but to evaluate the outcomes of the pedagogical modeling, that is, the extent to which the ability previously diagnosed in L1 was transferred, trained, and applied to English vocabulary as a result of the targeted instructional intervention.

Data collection and analysis

The empirical data were gathered within the framework of a psycholinguistic experiment and followed a multi-stage design. At all stages, students' metalinguistic statements were recorded in response to tasks that required them to explain the meanings of motivated words. Instruments included questionnaires, structured worksheets, and digital audio recordings for verbatim transcription.

To support ecological validity, data collection was integrated into regular instructional hours. Informed consent was obtained from school administrations and legal guardians, in line with ethical guidelines for research involving minors.

Instruments and procedures for the diagnostic stage

At the diagnostic stage, age-matched bilingual (Russian-Kazakh) and monolingual participants were presented with an identical set of motivated Russian vocabulary. The experiment used a dialogic interview format, similar to think-aloud protocols, where participants explained word motivation and interpreted meaning verbally.

Analysis of these verbal reports (meta-utterances) allowed the systematic classification of word form-meaning associations and exposed the underlying cognitive mechanisms. The task identified individual lexical processing strategies and recorded baseline levels of motivational reflection and figurative thinking, including word segmentation, identification of the motivating element, and reconstruction of the word's inner form. These findings provided the empirical basis for designing the subsequent formative pedagogical intervention (Yurina, 1995).

The formative stage: a cognitive–pedagogical model

The formative stage took place one year later with Experimental group (Grade 8–9 students). The intervention ran over 12 weeks (24 academic hours), with two 45-minute sessions per week held outside regular school hours. The sessions were led by the primary researcher in order to ensure consistency. To preserve treatment fidelity, all sessions followed a standardized manual, and 20% of the lessons were observed by an independent senior educator who checked adherence to the cognitive scaffolding model. Over the same 12-week period, the Control Group received no targeted instruction in figurative thinking or motivational reflection: CG students continued with the standard school English curriculum, based on translation, repetition, and contextual vocabulary use, with no focus on inner form or metaphorical structure.

This pedagogical modeling served not only to describe the interpretative strategies identified at the diagnostic stage but also to deliberately shape these cognitive strategies within instructional practice (Yurina, 2004). In this sense, the formative stage acted as a link between the initial diagnosis and the subsequent assessment of change in figurative thinking.

The instructional system formed a coherent pedagogical model for the development of figurative thinking through metaphorically motivated lexis, grounded in the principle of gradual cognitive scaffolding and built into the experimental design as a formative intervention (Lee & Lee, 2022). In contrast to the fragmentary techniques described in the methodological literature, the system aimed at the formation of stable interpretive strategies, including the identification of lexical motivators, the reconstruction of inner form, and the conscious manipulation of figurative meaning in discourse (see Appendix A). Its implementation within a pretest-posttest framework allowed the examination of changes in students' figurative thinking and motivational reflection, as well as the evaluation of the pedagogical effectiveness of motivated vocabulary as a cognitive resource in bilingual education (Cummins, 1979).

The control stage: analytical framework and content analysis

To support a qualitative interpretation of the outcomes of the formative pedagogical intervention, the posttest stage used a content analysis of students' written metalinguistic comments. Content analysis was not used as an independent diagnostic method but as a secondary analytical procedure applied to the data obtained through the psycholinguistic experiment (Yurina, 2012) at the posttest stage. In the present study, a *metalinguistic comment* is defined as a written reflective product in which the student verbalizes their understanding of a word's meaning, with or without reference to its inner form, figurative associations, and motivational relations (Rostova, 2000). Such comments serve as indicators of students' levels of metalinguistic awareness and motivational reflection.

At the posttest stage, students were asked to interpret motivated English vocabulary items. Their written responses were treated as metalinguistic comments and subjected to systematic content analysis. For example, when interpreting the lexeme *SNOWDROP* (motivators: *snow*, *drop*; inner form: 'a white flower shaped like a drop'), the following types of responses were attested: "a flower white as snow", "it looks like a drop", "it grows under the

snow", "a snowy flower", "a drop as white as snow", "it is shaped like a drop", "a beautiful flower", and "a white flower".

The initial analysis allowed us to distinguish three types of interpretation that differed in the extent to which they drew on the inner form and the figurative component of meaning:

1. Motivating interpretations, in which students explicitly or implicitly activate the motivator and establish a form-meaning link (e.g., "it grows under the snow", "a snowy flower"). These responses signal awareness of the inner form but may lack elaborated imagery.
2. Figurative interpretations, characterized by the reconstruction of a perceptual or metaphorical image (e.g., "it looks like a drop", "a drop as white as snow"). These reflect a higher level of motivational reflection and figurative processing.
3. Non-motivating interpretations, which include literal, descriptive, or evaluative responses without reference to the inner form (e.g., "a beautiful flower", "a white flower"), pointing to a low level of motivational reflection and figurative processing (Zhakupova et al., 2024).

Following the methodological principles of Krippendorff (2018), the full dataset (3840 metalinguistic comments) was systematized and classified into six interpretive strategies (Zhakupova et al.,2024).

These strategies form a continuum of cognitive complexity. The *motivational-elaborative* strategy corresponds to the highest level, because it involves both identifying the motivator and conceptually extending meaning through metaphorical and associative links. The *perceptual–visual* and *occasional–paradoxical* strategies also point to advanced figurative processing and cognitive flexibility. In contrast, *literal* and *descriptive* strategies correspond to surface-level processing and limited awareness of form–meaning relations. The *evaluative* strategy occupies an intermediate position, reflecting affective engagement that does not necessarily involve motivational analysis.

Overall, the classification shows that motivational reflection and figurative thinking are gradient rather than categorical phenomena, expressed through a spectrum of interpretive strategies. This framework allowed us to capture qualitative differences in lexical processing and to compare developmental changes across the experimental and control groups following the instructional intervention.

Metrics and scaling

The typology of interpretive strategies identified above (see Appendix B) served as the basis for the subsequent quantitative analysis of students' figurative thinking levels. To support objectivity and reproducibility, the coding of metalinguistic responses was carried out by two independent raters. Inter-rater reliability (Cohen's k = 0.84) was established through cross-checking and calculation of agreement coefficients.

The qualitative categories derived from the content analysis were then operationalized into quantitative indicators. Each response was evaluated holistically using four indicators that reflect the depth of lexical-cognitive processing:

1. Associative flexibility : the range, relevance, and originality of associations generated;
2. Metaphorical perception : the ability to reconstruct the metaphorical image and internal structure of the word;
3. Variability of linguistic choice : the use of paraphrasing, figurative reformulation, and expressive alternatives;
4. Motivational reflection : awareness of the internal form and semantic motivation of the lexical item.

The criteria for each level are summarized in (see Appendix C).

A composite figurative thinking index was calculated for each participant from the summed scores across the four indicators. Each of the four indicators was scored on the same seven-point scale, producing a maximum composite score of 28 points per participant (4 indicators × 7 points). The composite index was calculated using the following formula:

Figurative Thinking Index (%) = (sum of scores across the four indicators / 28) × 100.

The mean values reported in Table 1 represent the group mean Composite Figurative Thinking Index expressed as a percentage of the maximum possible score (28 points), rather than raw scores on the seven-point scale. To provide a unified classification framework, the following threshold values were applied: low level, below 40% of the maximum value; medium level, 40-60%; high level, above 60% (Zhakupova et al., 2025a). These thresholds were applied both at the level of individual indicators and at that of the composite index. The distribution of figurative thinking levels in the students' first language (Russian) before the intervention is presented in Table 1.

Table 1.

Distribution of Figurative Thinking Index of bilingual and monolingual students (L1, Russian)

Group	N	Mean (%)	SD (%)	Min (%)	Max (%)	Low (<40%)	Medium (40–60%)	High (>60%)
EG	32	54.2	7.5	41	67	0	24	8
CG	32	50.1	8.2	33	65	6	24	2
Total	64	52.15	7.9	33	67	6	48	10

Data analysis was conducted at three levels: 1. Item-level analysis examined the frequency of strategy use across lexical items and identified words with more transparent versus more opaque internal structures; 2. Subject-level analysis focused on individual student profiles and dominant interpretive strategies; 3.Group-level analysis compared the EG and CG to identify statistically meaningful differences related to language experience.

Overall, content analysis served as an interface between qualitative interpretation and quantitative measurement, allowing a systematic and methodologically sound assessment of the development of figurative thinking.

Statistical Tests and Procedures

Quantitative analysis was carried out to test the statistical significance of the findings at three levels (Item, Subject, and Group). The following statistical tests were employed:

- The Shapiro-Wilk test confirmed a normal distribution of the composite figurative-thinking index in both groups (bilingual: W = 0.980, p = .929; monolingual: W = 0.930, p = .157).
- Independent Samples t-test: used at the diagnostic stage to identify baseline differences between the bilingual and monolingual cohorts.
- Paired Samples t-test: applied at the control stage to evaluate the longitudinal growth within each group separately, that is, the Experimental Group (following the instructional intervention) and the Control Group (following the standard school curriculum), by comparing pretest and posttest scores for the same respondents in each group.
- Cohen's d: calculated to determine the effect size, giving a measure of the practical significance and the effectiveness of the pedagogical intervention.
- Pearson Correlation (r) and Multiple Regression Analysis: used to examine the relationship and predictive power between awareness of the inner form (motivational reflection) and the creativity of students' speech.

RESULTS

Diagnostic phase: psycholinguistic experiment and baseline assessment

At the initial diagnostic stage (baseline assessment in Russian), the existing levels of figurative thinking and motivational reflection were assessed among 7th-grade students. The aim was to identify fundamental intergroup differences between bilingual and monolingual adolescents before the pedagogical intervention.

To test the statistical significance of the differences between the groups, an Independent Samples t-test was used, justified by the normal distribution of the data and by the need to compare mean values from two independent cohorts.

The results of the primary assessment, summarized in Table 2, indicated that bilingual students showed a significantly higher level of awareness of the inner form of the word (IFW) (*M = 62.4%, SD = 8.9*) than their monolingual peers (*M = 47.8%, SD = 10.7*). The calculated t-value *(t = 5.92*, *p = 0.001*) confirms statistically significant differences; the probability of obtaining such a difference by chance is less than 0.1%.

The analysis of variability revealed distinct distribution patterns. In the bilingual group, the standard deviation was lower (*SD = 8.9*) than in the monolingual group (*SD = 10.7*), indicating greater homogeneity in the developed skills (Yurina, 2018). The monolingual group displayed a wider dispersion of individual scores, reflecting less consistent development of reflexive analysis of lexical meaning.

To assess the practical significance of these findings, Cohen's *d* was calculated. The resulting value *(d = 1.49*) substantially exceeds the "large effect" threshold (0.8), underscoring a pronounced intergroup disparity at the diagnostic stage. Further analysis of the Standard Error (SE) and 95% Confidence Intervals (CI) supported this trend: the bilingual group showed a more

stable mean (*SE = 1.57, CI [59.3 – 65.5*]) compared with the higher variability in the monolingual group (*SE = 1.89, CI [44.1 – 51.5*]).

Table 2.

Mean Indicators of Meaningfulness in Metalinguistic Utterances (Diagnostic stage)

Indicator	EG **(N=32)**	CG **(N=32)**
Mean	62.4	47.8
Standard deviation	8.9	10.7
Standard Error	1.57	1.89
95% *Confidence interval*	[59.3 – 65.5]	[44.1 – 51.5]

A qualitative analysis of the interpretation strategies (Table 3) further clarified these quantitative differences. Bilingual respondents more frequently used the motivational-elaborative strategy (28% vs. 17% in monolinguals; Δ *= +11%),* with a focus on internal semantic and imagery-based links. In contrast, the monolingual group relied heavily on literal (31% vs. 14%; Δ = -17%) and descriptive strategies (25% vs. 10%; Δ = -15%), which point to a more superficial processing of lexical meaning.

Table 3.

Distribution of Interpretation Strategies at the Diagnostic stage)

Strategy Type	EG **(%)**	CG **(%)**	Diff **(%)**
Motivational-elaborative	28	17	+11
Perceptual-Visual	22	19	+3
Evaluative	18	10	+8
Literal	14	31	-17
Descriptive	10	25	-15
Occasional-Paradoxical	8	6	+2

Formative phase: pedagogical modeling and pretest–posttest design

The efficacy of the developed six-stage instructional framework was evaluated using a pretest-posttest comparison. Data analysis for the Experimental Group (EG) showed substantial growth across all four parameters of the 7-point scale (Table 4).

At this phase, a Paired Samples t-test was applied to the Experimental Group to compare the longitudinal results of the same respondents, thereby controlling for individual differences and isolating the impact of the instructional methodology. The largest change was observed for the Motivational Reflection parameter (growth Δ = +1.9 points, $p < 0.01$). The effect size reached d = 1.60, interpreted as a "very large effect." This is an important finding, as it shows that the methodology alters the cognitive algorithms of thinking rather than simply expanding vocabulary. The Control Group, which followed the standard school curriculum without the targeted instructional intervention, was assessed using the same Paired Samples t-test procedure to evaluate within-group change between the two time points. This comparison produced statistically non-significant results across all four indicators ($p > 0.05$), showing that

regular curricular instruction alone did not produce comparable gains in figurative thinking. This contrast allows the improvements observed in the EG to be attributed to the purposeful pedagogical intervention rather than to maturation, testing effects, or routine classroom exposure.

Table 4.

Dynamics of Figurative Thinking Indicators (7-Point Scale)

Indicator	Before (CG)	After (CG)	Δ (CG)	p (CG)	Before (EG)	After (EG)	Δ (EG)	p (EG)	Cohen's d (EG)
Associative flexibility	2.6	3.0	+0.4	>0.05	2.7	4.2	+1.5	<0.01	1.28
Metaphorical perception	2.3	2.9	+0.6	>0.05	2.4	4.1	+1.7	<0.01	1.42
Variability of linguistic choice	2.8	3.3	+0.5	>0.05	2.9	4.3	+1.4	<0.05	1.15
Motivational reflection	2.5	2.9	+0.4	>0.05	2.6	4.5	+1.9	<0.01	1.60

Qualitative transformation of strategies

Content analysis of a corpus of 3,840 written metalinguistic utterances revealed not only quantitative score increases but also a fundamental restructuring of cognitive strategies within the EG (Table 6). A clear shift from surface-level to deep-level processing strategies was observed:

- The proportion of literal interpretations more than halved (from 31% to 12%, Δ *= -19*), signaling the successful overcoming of "literalism."
- The combined share of metaphorical and motivational-elaborative strategies rose from 17% to 50%. After the intervention, every second student response contained elements of creative re-evaluation.

Table 5.

Samples of Lexical Unit Interpretation Transformations

Lexical Unit	*Before pedagogical intervention (Literal strategy)*	*After pedagogical intervention (Motivational-elaborative)*
SKYSCRAPER	“A building that touches the sky”	«A tall building that seems to scratch the sky»
SILVER-TONGUED	“A person who speaks well”	«A person whose "tongue" (speech) shines bright like silver»
BAREFACED	«A person without a face / open»	«A person whose face looks like bare openly and shamelessly»
TRUTHSEEKER	«A person who is looking for the truth»	«A person determined to seek the truth, uncover hidden meanings»

Table 6.

Dynamics of Interpretation Strategies in the Experimental Group

Strategy	Before intervention (%)	After intervention (%)	Δ	Qualitative Effect
Motivational-elaborative	20	35	+15	Substantial increase
Perceptual-Visual	22	30	+8	Moderate increase
Literal	31	12	–19	Significant reduction
Descriptive and occasional-paradoxical	12	23	+11	Moderate increase

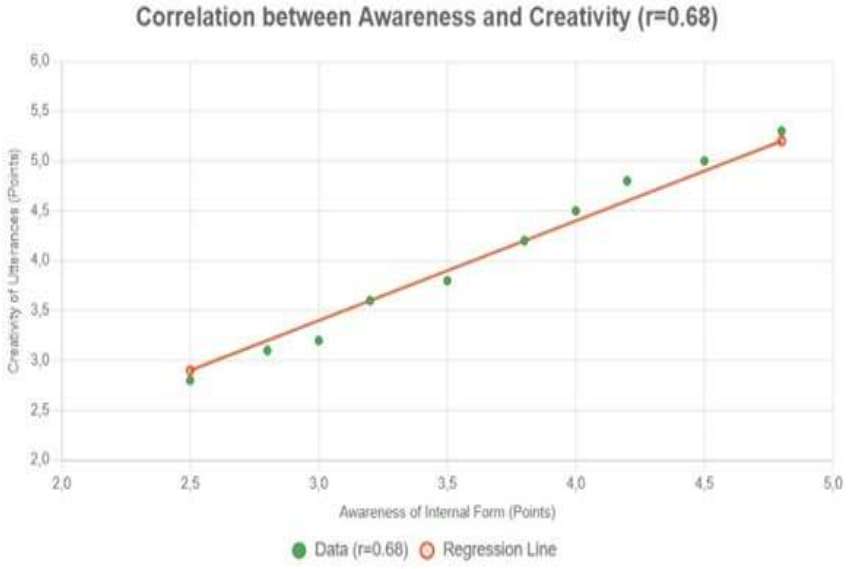
For instance, the interpretation of the lexical unit *SILVER-TONGUED* transformed from a literal description ("a person who speaks well") to a motivational-elaborative reading ("a person whose tongue [speech] shines bright like silver"), reflecting an activated awareness of the IFW.

Analytical phase: correlation and regression analysis

To examine the interdependencies between the cognitive metrics at the final stage, a correlation and regression analysis was conducted. The relationship between IFW awareness and the creativity of metalinguistic utterances (Figure 1) showed a strong, positive linear correlation.

Figure 1.

Correlation between Motivational reflection and Metaphorical perception



The Pearson correlation coefficient was *r = 0.68 (p < 0.01*), corresponding to a strong direct relationship. The coefficient of determination (*R^2 = 0.462*) indicates that 46.2% of the variance in creativity scores can be explained by differences in the level of IFW awareness. Multicollinearity diagnostics showed no problematic collinearity (VIF = 1.63; r = 0.62), and the

regression model was significant ($F(2, 61) = 33.67$, $p < 0.001$), with Motivational reflection ($\beta = 0.49$) outperforming Metaphorical perception (Yurina & Kazakova, 2014) ($\beta = 0.33$) as a predictor.

The multiple regression analysis confirmed the statistical significance of the model (*F(2, 61)* = 33.67, *p < 0.001*). Analysis of standardized beta-coefficients showed that the “Motivational reflection” variable (*beta = 0.49*) possesses greater predictive power than the “Metaphorical perception” variable (*beta* = 0.33).

In summary, the combined statistical and graphical analyzes demonstrate that the development of analytical skills regarding the IFW serves as a foundational catalyst for the growth of productive creativity in foreign language speech.

DISCUSSION

The present study examined the role of motivated lexis in the development of figurative thinking among middle school EFL students, with a particular focus on motivational reflection and awareness of the inner form of the word. The results offer empirical support for the proposition that systematic engagement with metaphorically motivated lexical units supports not only lexical skill acquisition but also the activation of higher-order cognitive and metalinguistic processes. This is shown by the substantial growth across all indicators of figurative thinking within the experimental group.

The bilingual advantage in motivational reflection

Diagnostic results supported Hypothesis 1: Russian–Kazakh bilinguals exhibit a statistically significant advantage in baseline figurative thinking and motivational reflection . Motivational reflection, that is, the capacity to correlate a word’s inner form with its metaphorical meaning, showed a qualitative divergence in processing strategies between the bilingual and monolingual cohorts.

This outcome supports Cummins’ Interdependence Hypothesis (Cummins, 1979, 2021), which holds that cognitive-academic proficiencies transfer across languages via a Common Underlying Proficiency (CUP). In the present study, the analytical strategies fostered by bilingualism supported the reconstruction of the IFW in a third language (L3). The bilingual advantage is further elucidated by Bialystok (2023), who connects multilingual experience to enhanced executive control. These mechanisms allow students to suppress dominant literal interpretations in favor of figurative ones, a critical skill for decoding motivated lexis. While Kharkhurin (2017) associates bilingualism with "multilingual creativity," our data suggest this manifests as heightened variability in interpretative strategies rather than as general divergent thinking.

Within the framework of L3 acquisition, the data align with Jessner’s Dynamic Model of Multilingualism (Jessner, 2008, 2022). Bilinguals develop the “M-factor”a specific metalinguistic awareness that supports the recognition of morphological patterns through cross-linguistic

monitoring. These findings echo Nagy (2007), who identifies morphological awareness as a primary predictor for decoding semantically complex units.

As a result, bilingual students show a stronger tendency to reconstruct meaning through the IFW, using associative and metaphorical cues rather than superficial dictionary definitions. This cognitive flexibility, developed through constant interlinguistic navigation and the management of overlapping semantic systems, supports effective conceptual mapping. In sum, this advantage creates a strong foundation for more conscious linguistic choices and more sophisticated lexical inferencing in foreign language acquisition.

Pedagogical efficacy of motivated lexis instruction

The statistically significant growth observed in the EG after the pedagogical intervention provides strong evidence for Hypothesis 2. The results show that systematic instruction centered on metaphorically motivated lexis serves as a powerful driver for fostering figurative thinking. Specifically, the substantial increase in “motivational reflection” scores indicates that these changes go beyond the incremental linguistic progress typical of naturalistic L2 acquisition.

Methodologically, this finding indicates that the intervention triggered a qualitative restructuring of the participants' cognitive architecture. Instead of treating English vocabulary as a collection of arbitrary symbols to be memorized through rote repetition, students began to view words as motivated structures that require active morphological and semantic analysis (Schmitt & Schmitt, 2020). This shift from “shallow” to “deep” processing is the primary driver behind the EG's superior performance. By engaging with the IFW, learners move beyond surface definitions and reconstruct the underlying conceptual metaphors.

The theoretical validity of this approach is well supported by Dual Coding Theory (Paivio, 1986) and its application to lexical motivation (Boers & Lindstromberg, 2009). By explicitly highlighting the link between a word's morphological form and its figurative meaning, the developed methodology creates dual mental representations, verbal and imagistic. This “cognitive amplification” increases the durability of the lexical trace, making it more resistant to attrition (Blinova, 1983). Furthermore, the results align with Candry et al. (2017), which emphasize that the “form-meaning fit” is a key predictor of long-term retention.

By bridging the gap between literal components and figurative wholes (Littlemore, 2010), students develop a “motivational algorithm” that strengthens their lexical inferencing skills. This is further explained by the Depth of Processing hypothesis: etymological and imagery-based elaboration requires a higher cognitive load, leading to deeper integration into the mental lexicon than rote memorization (Boers, 2000).

Overall, the documented enhancement of figurative thinking is consistent with Boers' (2000) Depth of Processing account and with Littlemore and Low's (2006) view of metaphoric competence, both of which suggest that systematic work with motivated and metaphorical vocabulary transforms passive lexical reception into an active cognitive search for form-meaning

links. As a result, foreign language acquisition becomes a more conscious, analytical process, widening the didactic potential of lexical instruction.

Transformation of interpretative strategies

The confirmation of Hypothesis 3 shows that developing IFW awareness has a systemic influence on the qualitative restructuring of interpretative strategies. The data point to a fundamental shift in the cognitive algorithm: students moved from literal, formal-descriptive interpretations toward more sophisticated motivational-elaborative and perceptual-visual strategies.

This growth aligns with Littlemore's (2023) psycholinguistic models, in which successful interpretation requires the identification of conceptual correspondences between source and target domains rather than direct translation. Over the course of the experiment, participants increasingly mapped morphological structures onto their underlying figurative bases, building associative links that go beyond surface meaning. According to the Involvement Load Hypothesis (Laufer & Hulstijn, 2001), tasks requiring "search" and "evaluation" of the IFW promote deeper processing.

The marked increase in perceptual-visual strategies specifically supports the development of metacognitive competence. By generating mental images that act as "cognitive anchors", students reduced the cognitive load during lexical recall. This indicates that the IFW serves as a vehicle for Metaphorical Competence (Littlemore & Low, 2006), giving students productive tools for navigating communicative ambiguity. Unlike the control group, which remained anchored in formal-literal decoding, the EG developed flexible strategies that fundamentally changed the nature of their lexical inferencing (Haastrup & Wesche, 2022).

Motivational Reflection as a Cognitive Mechanism

The statistically significant positive correlation between awareness of the IFW, operationalized as motivational reflection, and the level of figurative thinking, as reflected in the creativity and variability of learner output, confirms the central role of this mechanism in lexical development (Zhakupova et al, 2025b). Motivational reflection thus functions not as a byproduct of instruction but as a central cognitive mediator that enables the transition from reproductive vocabulary use to productive and interpretative language proficiency.

These findings challenge the view of figurative thinking as a stable or innate trait and instead support its conceptualization as a language-specific, dynamically formed competence that is shaped through instruction. This interpretation is consistent with Danesi's Conceptual Fluency Theory, which emphasizes awareness of metaphorical encoding as a prerequisite for successful language mastery (Danesi, 2022).

From a psycholinguistic perspective, motivated lexis offers learners cognitively transparent material that supports lexical inferencing under conditions of limited semantic knowledge. The IFW serves as a semantic scaffold by activating intra-word morphological and semantic cues, thereby reducing reliance on external information sources and strengthening learner autonomy (Haastrup, 1991; Nation, 2001).

In this study, bilingual students used cross-linguistic mapping strategies, drawing on similarities in figurative and motivational structures across languages to reconstruct unfamiliar lexical meanings, with the IFW acting as a focal point for semantic deduction. The centrality of the IFW as an interpretive mechanism aligns with Eastern European psycholinguistic traditions that treat the inner form as a carrier of conceptual meaning (Kubryakova, 2004) and with the cognitive-linguistic view of metaphor as grounded in everyday cognition (Lakoff & Johnson, 2003; Kövecses, 2010). The pedagogical activation of the IFW thus turns a latent cognitive resource into a functional interpretive tool.

Overall, motivational reflection integrates metalinguistic awareness, lexical inferencing, and figurative thinking, supporting conscious language use, interpretative flexibility, and lexical creativity, and confirming the pedagogical potential of motivated lexis as a driver of linguistic and cognitive development.

CONCLUSION

The present study confirms the value of synthesizing lexical motivation and imagery theories to foster figurative thinking within the EFL curriculum. The developed instructional framework, centered on awareness of the IFW and its systematic interpretation across denotative, associative, and symbolic levels, yielded statistically significant gains in figurative thinking within the experimental cohort relative to the control group.

The primary outcome of the experimental intervention was an enhancement of motivational reflection, defined as the conscious awareness of the IFW. This was shown through more precise correlations between morphemic structures and metaphorical meanings, alongside the more sophisticated use of morphological reconstruction strategies. These shifts mark a qualitative restructuring of the cognitive mechanisms underlying lexical interpretation, moving from literal, descriptive interpretations to higher-order motivational-elaborative, metaphorical, and perceptual-visual strategies.

In addition, the comparative analysis suggests that bilingualism functions as an important cognitive resource, deepening the analytical processing of linguistic material through cross-linguistic mapping and the activation of integrated conceptual structures (Blinova & Yurina, 2008). Under purposeful instructional modeling, this resource speeds up the acquisition of analytical skills regarding the interplay between language form and meaning. In sum, these results show that systematic engagement with motivated lexis transforms the process of vocabulary acquisition from a mechanical memorization task into a conscious metalinguistic inquiry, thereby supporting the overall cognitive and interpretative development of the student.

Contribution and Implications

The present findings extend current understanding of motivational reflection, demonstrating that awareness of the IFW acts as a critical cognitive mechanism bridging lexical acquisition, interpretative strategies, and linguistic creativity. Empirically, the research shows that

bilingualism deepens semantic processing and increases the variability of interpretative strategies when supported by purposeful pedagogical intervention.

The practical implications of this study lie in the smooth integration of the exercise system developed here into secondary EFL curricula, particularly within bilingual and multilingual environments. In addition, the results provide a sound foundation for the advancement of translanguaging pedagogies, which call for the strategic and conscious use of a student's entire linguistic repertoire in order to maximize cognitive and communicative growth.

Limitations and Future Research

Despite the importance of the findings, several limitations should be considered. First, the sample was limited to middle school students in bilingual schools in Northern Kazakhstan, which constrains the generalizability of the results to other sociolinguistic contexts, including monolingual settings and different language combinations.

Second, the study focused only on EFL. Given the morphological and semantic features of English and its relatively high degree of lexical motivation, the findings may not be directly transferable to other target languages. Future research should therefore adapt and validate the instructional model for languages with different typological profiles in order to assess the universality of the identified mechanisms.

Third, figurative thinking and motivational reflection were assessed mainly through written metalinguistic output and interpretative strategies. Although appropriate, this approach gives limited insight into real-time cognitive processing. Further studies should incorporate experimental methods such as reaction time tasks and think-aloud protocols to capture online inferencing and interpretation processes.

In addition, the present study did not isolate the effects of specific instructional components, such as morphological analysis, visualization, or storytelling (Yurina, 2004). Factor-analytic approaches could help determine their relative contributions and optimize instructional design.

Finally, the role of multilingual awareness deserves further investigation (Jessner, 2022), particularly with respect to how the pedagogical activation of L1 and L2 resources affects interpretation in a third language. This would support more precise models of interlinguistic transfer and strengthen instruction in multilingual classrooms.

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