


# From analytic to synthetic? Kantian perspectives on definition-oriented and context-oriented lexical learning regarding lexical competence, self-efficacy, and motivation

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## ABSTRACT

This study, based on Kant's distinction between analytic and synthetic judgments, examines the effects of definition-oriented and context-oriented lexical learning on foreign language learners' vocabulary skills, self-efficacy, and motivation, offering interpretations of these teaching differences. While analytic judgments refer to statements whose predicate is contained within the concept of the subject, synthetic judgments stand for statements whose predicate involves elements that do not originally belong to the concept of the subject. These two judgments elicit two distinctive processing orientations related to lexical learning. Analytic judgments elicit conceptual clarification associated with definition-oriented lexical learning, whereas synthetic judgments elicit meaningful cognitive extension associated with context-oriented lexical learning. A quasi-experimental design was used with 160 non-English-major undergraduates who participated in either definition-oriented or context-oriented vocabulary learning groups over six weeks. While vocabulary pretests and posttests measure lexical skills, post-intervention surveys assess learners' affective states. Results from the one-way ANCOVA indicate that, after accounting for pretest scores, the context-oriented group significantly outperforms the definition-oriented group on the posttest. The Mann-Whitney U test also reveals higher levels of self-efficacy and motivation in the context-oriented group. Pearson's correlation indicates positive links among lexical skills, self-efficacy, and motivation in both groups. These findings suggest that context-oriented lexical learning, which integrates vocabulary clarification into meaningful communication, is more effective at improving both performance and emotional aspects of vocabulary development. This research aims to extend Kant's analytic/synthetic distinction to language teaching and to offer a philosophically grounded framework for understanding different modes of lexical learning.

**Keywords:** *Context-oriented lexical learning, Definition-oriented lexical learning, Lexical competence, Motivation, Self-efficacy.*

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### Highlights of this paper

- Context-oriented lexical learning more effectively enhances lexical competence than definition-oriented lexical learning in foreign language education.
- Context-oriented lexical learning promotes higher self-efficacy and motivation than definition-oriented lexical learning, despite both approaches involving a similar reciprocal mechanism of performative development and affective engagement.
- Kant's distinction of analytic and synthetic judgments is extensible to a philosophically informed framework for lexical pedagogy.

## 1. INTRODUCTION

Whether a learner has grasped the meaning of the word depends on the learner's ability to provide the word's definition. In foreign language learning, word comprehension is an indispensable task that can be achieved through definitional recall, translation equivalents, or memorization of semantic features (Vanbuel, 2025). However, the assumed straightforward achievability of lexical competence through mechanical reinforcement or bilingual transfer would be challenged by the trend toward contextualization in learning (Saito, Uchihara, Takizawa, & Suzukida, 2024). That is, learners might comprehend words in discourse and apply the words in new contexts, reflecting the efficiency of contextualized learning in facilitating lexical competence (Fernández-Fontecha, Jiménez Catalán, & Ryan, 2024). The core idea behind the competition between these pedagogical preferences is not merely about how many words learners can know, but about what is required to know a word (Bárkányi & Brash, 2025). This core idea is associated with Kant (1999) distinction between analytic and synthetic judgments, i.e., a distinction that clarifies how concepts relate to cognition and how knowledge extends the content stored in thought.

Analytic judgments are those where the predicate is contained within the concept of the subject, while synthetic judgments are those where the predicate involves elements that do not originally belong to the concept of the subject (Tucker, 2025). Kant (1999) theoretical distinction is extensible to an understanding of judgment as an active cognitive faculty rather than a passive receptacle of phenomenal representations. Judgment enables individuals to assess the meaningfulness of concepts in relation to intuition and experience (Alexiadou, Oikonomou, & Rotter, 2026). That Kantian framework paves the path for the rethinking of lexical competence: substantial lexical competence is not reducible to the ability to restate the word's definitional content but is based on the extension and application of the definitional content in concrete contexts (Matsuoka, Manalo, Rosário, & Núñez, 2025).

Kant (1999) philosophical distinction resonates strongly with the multidimensionality of vocabulary knowledge, encompassing lexical form, core meaning, use, collocation, register, association, and contextual appropriateness in applied linguistics (Hopp, Schimke, Gastmann, Öwerdieck, & Poarch, 2024). Lexical competence includes what a word conventionally denotes and how the word functions in actual communicative environments (Muylle, Van Assche, & Hartsuiker, 2022). Although much research has concentrated on components of lexical competence, the topic remains extensible to the epistemological structure that distinguishes definitional knowledge from contextualized understanding. Despite numerous aspects of word competence in pedagogical or psycholinguistic terms, research still needs to explain why definitional knowledge may fail to contribute to successful lexical use in communicative contexts (Poliak, Malik-Moraleda, & Gibson, 2025). Insufficient explanation leads to the seemingly plausible assumption in vocabulary learning that the richness of lexical competence is equivalent to greater accumulation of lexical information rather than to learners' different cognitive modes of processing that information (Baxter et al., 2022).

According to Kant (1999) distinction between analytic and synthetic judgments, mere definitional mastery is not sufficient for lexical competence. Definition-based lexical competence is predominantly analytic, insofar as the

definitional knowledge is already contained in a lexical concept (Hamada et al., 2024). In contrast, context-sensitive understanding and appropriate use are mainly synthetic, insofar as they extend meaning through communicative experiences (Matsuoka et al., 2025). Thus, lexical competence is not merely the storage of definitional content but an active capacity for judgment, reflecting that definitions are not complete but a preliminary stage of lexical competence. Instead, context-sensitive word use functions as a distinct form of cognitive achievement and facilitates substantial enhancement in lexical competence. Corresponding to the Kantian reconceptualization of lexical competence, the movement from lexical definition to lexical appropriateness reflects a shift from explication to application.

The significance of this study is twofold. In the philosophical aspect, this study extends Kant (1999) theory of analytic/synthetic judgments into the nature of lexical meaning and concept possession in language learning. Originally functioning as epistemological terms, analytic and synthetic judgments become conceptual tools for examining how learners know and use words cognitively. This study emphasizes whether vocabulary is achievable through definitional glosses or contextualized uses, reflecting the explanatory force of the classical Kantian distinction for questions about meaning and competence.

Apart from conceptual reflection, this study proposes an empirical examination of the distinction-based pedagogies, i.e., a philosophy-informed quantitative comparison between definition-oriented and context-sensitive lexical knowledge. A quasi-experimental design tests whether a context-centered instructional intervention yields greater gains in lexical performance than a definition-centered instructional intervention. These methodological designs address the Kantian distinction as an operational framework for investigating the structure and obtainability of vocabulary knowledge.

The potential contribution of this study is threefold. First, this study aims to offer a more comprehensive philosophical account of lexical competence that is not restricted solely to storage, recall, or accumulation. Second, this study aims to identify a theoretically meaningful, testable, quantitative gap between definitional and contextual knowledge. Third, this study implies an interdisciplinary transfer from Kantian epistemology to foreign language education, confirming the feasible application of philosophy to abstract cognition issues and concrete learning practices.

## **2. LITERATURE REVIEW**

This section reviews the key concepts and their relations for research hypotheses.

### *2.1. Lexical Learning Orientations Corresponding to Analytic and Synthetic Judgments*

Analytic and synthetic judgments are forms of cognitive activity (Tucker, 2025). According to Kant (1999) theory of analytic/synthetic judgments, in which the predicate is already contained in the subject concept, analytic judgments reflect explicative processing associated with conceptual clarification (Alexiadou et al., 2026). In contrast, when ideas not already present in the original concept are added, synthetic judgments reflect ampliative processing associated with meaningful cognitive extension (Alexiadou et al., 2026). In this sense, the philosophical distinction between analytic and synthetic judgments demonstrates the practical implications through cognitive processing.

The practical implication serves as a heuristic for mapping classroom vocabulary instruction. Corresponding to analytic judgments, definition-oriented lexical learning requires learners to clarify or recall the meaning already given in the lexical entry (Hamada et al., 2024). In contrast, in the context of synthetic judgments, context-oriented lexical learning enables learners to associate lexical items with discourse, situations, collocations, or pragmatic uses

that definitions do not exhaust (Matsuoka et al., 2025). These two instructional orientations reveal differences in teaching technique and cognitive operation that can be foregrounded during lexical learning. While definition-oriented learning prefers semantic clarification, context-oriented learning privileges the extension of situational meaning.

The distinction between these lexical learning orientations is worth analyzing in the context of foreign language learning. Although a learner may know the word “gloss” for definitional understanding, they may still fail to interpret it appropriately in discourse (Saito et al., 2024). Most lexical knowledge in actual language use rarely ceases at the definitional level (Vanbuel, 2025). Thus, the correspondence between analytic/synthetic judgments and definition/context-oriented lexical learning, respectively, elicits how lexical learning orientations comparatively influence lexical competence, reflecting the central premise of this study.

Corresponding to the distinction between definition-level knowledge and context-sensitive use, this study treats lexical competence as a performance-based learning outcome that is presumably shaped by the instructional orientation of lexical learning. Against the backdrop of ongoing research on how to structure or operationalize lexical knowledge, vocabulary is foundational to broader foreign-language performance (Bárkányi & Brash, 2025). Since lexical competence involves collocation, constraints, associations, and contextual appropriateness, learners’ ability to recognize and clarify word definitions per se cannot capture the full construct of lexical competence (Hopp et al., 2024).

Lexical competence is a multidimensional construct, including the aspects of spoken form, written form, form-meaning connection, associations, grammatical functions, collocations, and constraints on use (Fernández-Fontecha et al., 2024). Lexical competence is not solely determined by input quantity, because depth of understanding and quality of application are indispensable for enhancing language performance (Baxter et al., 2022). In that case, teaching and assessment of vocabulary knowledge require the lexical complexity in the meaning-related and use-related aspects (Muylle et al., 2022). Vocabulary tests are standard and reliable approaches to tracking lexical proficiency and development (González-Fernández & Webb, 2024). Contemporary vocabulary research accordingly calls for measures beyond isolated definition recall, especially when the goal is to understand and interpret how learners can apply lexical knowledge in communicative contexts (Uchihara, Saito, Kurokawa, Takizawa, & Suzukida, 2025).

## *2.2. Affective Factors in Definition- and Context-Oriented Lexical Learning*

Apart from measurable lexical performance, affective factors are another group of factors that influence how learners can approach and persist in lexical learning tasks (Sánchez, Pérez-García, Arroyo, & Bermúdez-Margaretto, 2025). Vocabulary learning self-efficacy and vocabulary learning motivation are the two affective factors associated with learners’ perceptions of capability and willingness to engage in lexical learning (Derakhshan, Solhi, Dewaele, & Shakki, 2025). Learners’ engagement with vocabulary tasks is substantially shaped by their beliefs and motivational conditions, contributing to improvements in learning outcomes (Paradowski & Jelińska, 2024). That statement is consistent with the multidimensionality of vocabulary learning regarding cognitive processing and affective facilitation (Saito, Dewaele, & Abe, 2025).

Vocabulary learning self-efficacy refers to learners’ self-evaluation about their capability to accomplish vocabulary-related tasks (Derakhshan & Fathi, 2024). Vocabulary learning self-efficacy reflects task- and domain-specific capability associated with vocabulary form, meaning, and use (Calafato, 2025). Vocabulary learning self-efficacy functions as a by-product of learning achievement and an independent psychological factor for sustainable learning (Almayez, Al-Khresheh, Al-Qadri, Alkhateeb, & Alomaim, 2025).

In a definition-oriented condition, vocabulary learning self-efficacy fosters learners' affective security through explicit task demands involving given meanings, lexical equivalents, or definitional clarity (Calafato, 2025). Although this instructional support may guarantee immediate certainty at the level of form-meaning mapping, learners may still be restricted to a narrow understanding, i.e., a lack of interpretation of lexical items across varying contexts (Poliak et al., 2025). In contrast, in a context-oriented condition, vocabulary learning self-efficacy encourages learners to infer, disambiguate, and apply lexical meaning in dynamic contexts (Janjić, Spencer, & Coventry, 2026). During these activities, learners may achieve a durable sense of capability and experience themselves as being able to recall meanings and reinforce appropriate use in discourse (Shin & Won, 2024). Since context-based lexical learning can develop learners' confidence and autonomy while reducing their dependence on dictionaries or external support, vocabulary-learning self-efficacy in this case can facilitate learners' comprehension of ambiguous vocabulary and the contextualized use of terminology (Janjić et al., 2026).

Vocabulary learning motivation refers to learners' reasons, energy, and persistence that drive them to invest effort in vocabulary learning (Darvin & Norton, 2023). Vocabulary-focused instructional environments for blended foreign language learning necessitate learners' spontaneous volition to concentrate on lexical content, interpretation, and use (Hwang, Rahimi, & Fathi, 2024). Without being a fixed learner trait, vocabulary motivation is responsive to instructional design (Darvin & Norton, 2023). The implementation of interactive or technology-assisted support is a prerequisite for vocabulary knowledge and motivation to learn vocabulary (Kaveh, 2025).

In a definition-oriented condition, the cultivation of vocabulary-learning motivation focuses on memorizing or recognizing meanings for immediate efficiency and clarity (Kole & Johnson, 2025). In that case, learners are positioned mainly as recipients of semantic information (Kole & Johnson, 2025). In contrast, in a context-oriented condition, vocabulary learning motivation is cultivated by focusing on interpreting lexical meaning in communicative situations (Haththotuwa Gamage, 2026). Since, in this case, words are resources for synergistic application rather than knowledge for isolated storage, such discourse-level practices increase the meaningfulness of lexical work (Shin & Won, 2024). Blended or interactive vocabulary-learning settings are beneficial for enhancing motivation to learn and vocabulary performance (Cancino & Viguera, 2024).

### *2.3. Performative and Affective Factors Related to Lexical Learning Orientations*

This study compares two lexical learning orientations: definition-oriented lexical learning and context-oriented lexical learning, regarding their effects on learning performance (lexical competence) and affective factors (vocabulary learning self-efficacy and motivation). The two orientations are assumed to differ in instructional format and foregrounded lexical processing types. While definition-oriented learning highlights direct form-meaning clarification (Hamada et al., 2024) context-oriented learning emphasizes learners' engagement with meaning disambiguation, situational interpretation, and lexical application (Matsuoka et al., 2025). Since learning outcomes are straightforward measures of instructional influence, the quantitative measurement of lexical competence enables the comparative assessment of the two instructional interventions in terms of learning outcomes and reflects the efficiency of the corresponding instruction (González-Fernández & Webb, 2024). Consistent with the prior finding that context-based vocabulary activities encourage learners to comprehend and use vocabulary to achieve effective knowledge retrieval (Uchihara et al., 2025) the first hypothesis regarding the comparative effects of vocabulary learning orientations on lexical competence is as follows.

*Hypothesis 1 (H<sub>1</sub>): Lexical competence is higher for the learners in the context-oriented lexical learning condition than for the learners in the definition-oriented lexical learning condition.*

Vocabulary learning self-efficacy reflects learners' task-specific beliefs about their ability to successfully learn vocabulary (Derakhshan et al., 2025). Contextualized vocabulary learning offers repeated opportunities to interpret lexical meaning, encouraging learners to infer, disambiguate, and apply it in realistic language (Janjić et al., 2026). These activities foster adaptive engagement and persistence, which are associated with enhanced self-efficacy and substantial learning progress without sole reliance on memorization (Paradowski & Jelińska, 2024). Vocabulary learning motivation reflects learners' facilitating state of experiencing learning tasks as meaningful, interactive, and competence-supportive activities (Darvin & Norton, 2023). Contextualized vocabulary learning does not present words as isolated semantic units but embeds words in discourse (Haththotuwa Gamage, 2026). Without being passively imbued with isolated knowledge, learners in this case perceive the value of grasping contextualized information and sustain their investment in further learning (Sánchez et al., 2025). Consistent with these statements, the second and third hypotheses regarding the comparative effects of vocabulary-learning orientations on the two affective factors are as follows:

*Hypothesis 2 (H<sub>2</sub>): Lexical learning self-efficacy is higher for the learners in the context-oriented lexical learning condition than the learners in the definition-oriented lexical learning condition.*

*Hypothesis 3 (H<sub>3</sub>): Lexical learning motivation is higher for the learners in the context-oriented lexical learning condition than the learners in the definition-oriented lexical learning condition.*

The comparative effects of the lexical learning orientations are also analyzable through the relationships between performative (lexical competence) and affective factors (vocabulary learning self-efficacy and motivation). Vocabulary learning self-efficacy is assumed to predict learning achievement because, when prompted, it guarantees adaptive attitudes and self-regulatory capacities that enable the spontaneous achievement of intended learning outcomes for long-term progress (Almayez et al., 2025). Motivation is also assumed to be positively related to learning achievement because embedding learning needs into behaviors progressively maintains learners' evaluation of how to achieve learning success and their actions toward learning goals (Saito et al., 2025). Self-efficacy and motivation are assumed to be positively interconnected, indicating that stronger beliefs in one's ability to accomplish learning tasks can support more sustained motivational engagement (Paradowski & Jelińska, 2024). Based on these findings, the two lexical learning orientations are assumed to yield similar positive relationships between the performative and affective factors, leading to the following hypotheses.

*Hypothesis 4 (H<sub>4</sub>): Vocabulary learning self-efficacy is positively associated with lexical competence in both definition- and context-oriented lexical learning conditions.*

*Hypothesis 5 (H<sub>5</sub>): Vocabulary learning motivation is positively associated with lexical competence in both definition- and context-oriented lexical learning conditions.*

*Hypothesis 6 (H<sub>6</sub>): Vocabulary learning self-efficacy is positively associated with Vocabulary learning motivation in both definition- and context-oriented lexical learning conditions.*

These hypotheses aim to determine whether one lexical learning orientation is more effective than the other and whether affective factors illuminate the mechanism by which lexical competence develops through learning orientations. The findings of hypothesis testing aim to interpret lexical learning as a multidimensional process involving performative and affective development and to demonstrate differences in the pedagogical benefits of lexical learning.

### **3. METHODOLOGY**

This section presents the methodological designs of this study.

### *3.1. Participants*

The participants in this study are 160 first-year undergraduates who are not majoring in English foreign studies and who come from the same university. After the recruitment, the participants were randomly assigned to two instructional groups employing the corresponding lexical learning orientations (definition- and context-oriented lexical learning orientations). The restriction of the research sample, academic level, and major aims to enhance group comparability and reduce potential confounding influences concerned with disciplinary specialization, differential exposure to English-related coursework, or advanced language-training experience.

Participation is voluntary. Before data collection, all participants were informed of the study's purpose, the empirical procedure, and the approximate time commitment. The empirical procedure continued based on participants' voluntary consent. To protect privacy, all data are processed and reported in de-identified form. Participants were also informed that performance in instructional interventions would not affect their course grades at the university. These processes aimed to reduce ethical concern and minimize pressure associated with the while-experiment performance.

### *3.2. Research Instruments*

The instructional intervention was supported by Massive Open Online Course (MOOC), a digital learning platform that enables learning management, curricular interaction, and extracurricular activities. Based on the technological support of MOOCs, lexical learning was delivered through a digital vocabulary-delivery interface that provided learners with access to target words, definitions, example sentences, short contextual passages, and weekly learning tasks. The implementation of MOOC pedagogically ensures that both instructional conditions receive the same amount of exposure time, task frequency, and target vocabulary set. Besides, the MOOC methodologically standardizes the delivery of coursework materials, reducing teacher inconsistency and enhancing replicability across instructional groups.

Lexical competence was measured using an adapted version of a standardized vocabulary test, administered twice: once as a pre-intervention (pretest) and once as a post-intervention (posttest). The source of the test design is the Vocabulary Size Test (VST) developed by Nation and Beglar (2007) which is widely used to assess receptive vocabulary knowledge, with a discussion of reliability, validity, and practicality (Nation, 2022). The adaptation of the vocabulary test aligns with the targeted lexical items taught during the six-week instructional intervention rather than estimating overall vocabulary size. This employment of an adapted vocabulary test is consistent with the principle of capturing meaningful word knowledge (targeting an instructional domain) rather than isolated trivia (Aimless measure of general vocabulary size) (Nation, 2022).

Each scored on a [0, 100] scale, the pretest and posttest were parallel forms containing different but equivalent items to reduce memory effects from repeated exposure to identical items while keeping the learning difficulty comparable. The adapted vocabulary test includes items associated with recognition (choosing the closest meaning of a target word) and context-sensitive lexical understanding (identifying the most appropriate word in a short sentence or passage). The trained English-language teachers from the coursework served as the test raters. The final vocabulary test score (the variables "Pretest" and "Posttest") was objective and answer-key based, which minimized scoring disagreement. The two raters could review any ambiguity arising in contextual items to reach a consensus decision.

Vocabulary learning self-efficacy and motivation were measured through a post-intervention questionnaire (see Table 1). Each construct was measured with six self-rating statements (SE1-SE6, M1-M6) on a five-point Likert scale (1 = Strongly disagree, 5 = Strongly agree). The self-efficacy and motivation items are adapted from Kutuk,

Putwain, Kaye, and Garrett (2023) and Ryan and Deci (2020) respectively. The self-efficacy items from Kutuk et al. (2023) reflect measures of foreign language learning rather than broad confidence judgments. The motivation items from Ryan and Deci (2020) reflect the conceptualization of spontaneous motivation in education and are congruent with the lexical learning conditions of this study. The values of the psychological constructs (variables “Self\_Efficacy” and “Motivation”) are the mean values of the corresponding rating sums, thus on a [1, 5] scale.

**Table 1.** Reliability and validity statistics of questionnaire-based affective variables.

Variable	Subitem	Reliability statistics		Validity statistics		Eigenvalue (% of variance)
		Cronbach's alpha for the variable	Cronbach's alpha with the item omitted	Factor loading		
				Factor 1	Factor 2	
<b>Vocabulary learning self-efficacy</b>	SE1	I can understand the meaning of a new English word when I meet it in a sentence or short passage.	0.837	0.815	0.705	4.539 (37.822)
	SE2	I can learn the meaning of new English words accurately when I study them.		0.811	0.714	
	SE3	I can use newly learned English words appropriately in my own sentences.		0.813	0.667	
	SE4	I can distinguish between similar English words when their meanings are slightly different.		0.812	0.731	
	SE5	I can remember and apply the meanings of new English words after learning them.		0.809	0.751	
	SE6	I can work out which English word fits best in a specific context.		0.803	0.775	
<b>Vocabulary learning motivation</b>	M1	I want to learn English vocabulary because I find it interesting.	0.807	0.784	0.618	1.922 (16.015)
	M2	I am willing to spend time learning English words even when the task is difficult.		0.779	0.764	
	M3	Learning English vocabulary is important for achieving my language-learning goals.		0.777	0.694	
	M4	I try to learn new English words because being able to use them gives me satisfaction.		0.765	0.715	
	M5	I want to improve my English vocabulary because it helps me understand and express meanings more effectively.		0.779	0.664	
	M6	I feel motivated when I learn English words in ways that help me use them in real situations.		0.778	0.714	

Regarding the reliability of the questionnaire items, the Cronbach's alpha values are greater than 0.800, 0.837, and 0.807 for "Self\_Efficacy" and "Motivation", respectively, and the alpha values do not largely change after the removal of any subitem. Thus, the two affective measures show high internal consistency and meet the reliability criterion (Abu-Bader, 2021). Regarding the validity of the questionnaire items, since the Kaiser-Meyer-Olkin measure is greater than 0.700 of 0.861, along with a statistically significant Bartlett's test (sig. < 0.001), the factor analysis is feasible for investigating validity issues. According to the factor analysis, the original variable-subitems grouping is consistent with the item clusters with their highest factor loadings, indicating that the two affective measures meet the validity requirement. Thus, both affective variables can serve as persuasive measures in subsequent analyses.

### 3.3. Empirical Procedure

The empirical procedure lasted six weeks, following three stages: pre-intervention, during-intervention, and post-intervention stages (see Figure 1). In the pre-intervention stage, all participants completed a lexical competence pretest (From which the variable "Pretest" was derived), to establish baseline vocabulary performance as the covariate. The pretest was administered under the same conditions for both groups to guarantee consistency.

In the while-intervention stage, the instructional intervention was delivered over six consecutive weeks of the English vocabulary course (twice a week, each session lasting 180 minutes). Based on Walker (2012) both groups learnt the same target lexical items and received the same number of learning tasks (in-class and weekly). The groups differed in lexical learning orientations, corresponding to the "Group" variable ("Definition-oriented" versus "context-oriented"). To minimize variation in teaching style, pacing, and interpersonal interaction that might confound the group comparison, the intervention was taught by the same college English teacher.

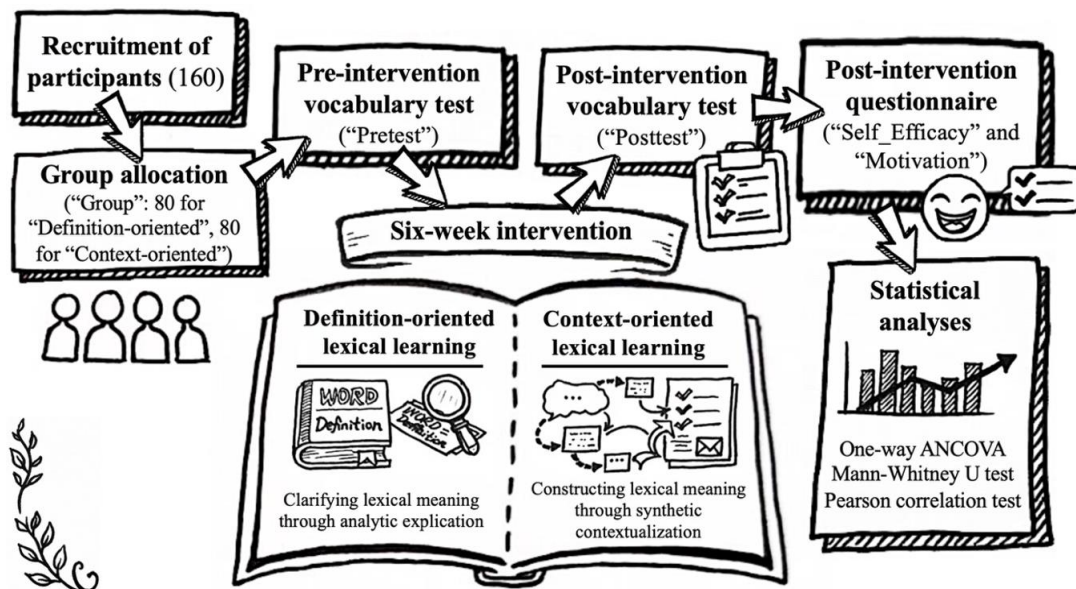


Figure 1. Visualized empirical procedure.

Corresponding to the conceptual contrast between analytic-like lexical clarification and synthetic-like lexical extension, definition- and context-oriented lexical learning conditions held exposure quantity constant across groups to ensure comparable findings. In the definition-oriented lexical learning condition, the teacher introduced target words primarily through direct explanations, translation equivalents, brief semantic feature explanations, and form-meaning matching activities. Definition-oriented weekly tasks focused on identifying meanings, recalling

definitions, and strengthening explicit lexical clarification. In contrast, in the context-oriented lexical learning condition, the teacher introduced target words primarily through example sentences, short passages, discourse-based interpretation, collocation patterns, and inferencing activities. Context-oriented weekly tasks concentrated on interpreting target words in contexts, selecting appropriate words for communicative situations, and extending lexical meaning through use.

In the post-intervention stage, all participants completed the posttest of lexical competence (from which the variable "Posttest" was recorded), which was the parallel form of the pretest. After completing the posttest, all participants completed the post-intervention questionnaire measuring vocabulary self-efficacy and motivation (from which the variables "Self\_Efficacy" and "Motivation" were derived). Since the scoring was objective, based on the pre-established answer key to resolve discrepancies, the final lexical competence score served as the quantitative learning-outcome performance variable, complemented by the affective post-intervention variables.

### *3.4. Statistical Platform and Data-Analysis Approaches*

IBM SPSS Statistics 29 is the platform to conduct all quantitative analyses. To test the influences of the lexical orientations on lexical competence with the confounding effects of prior competence excluded, one-way analysis of covariance (one-way ANCOVA) is the approach to comparing the posttest scores ("Posttest") of two instructional groups ("Group") while statistically controlling for a continuous baseline covariate ("Pretest"). Conducting a one-way ANCOVA requires meeting five assumptions (Abu-Bader, 2021). 1) The observations should be independent for the between-group design. 2) The covariate ("Pretest") and the dependent variable ("Posttest") should display a linear relationship. 3) The relationship between the covariate ("Pretest") and the dependent variable ("Posttest") should be similar across groups by the independent variable ("Group"), which can be examined through the homogeneity-of-regression-slopes assumption, i.e., that the interaction between "Group" and "Pretest" should be statistically non-significant. 4) The residuals should be approximately normally distributed, which can be tested statistically through the Shapiro-Wilk test. 5) The variances of the residuals across groups by the independent variable ("Group") should be reasonably similar, which can be analyzed through Levene's test of equality of error variances.

Functioning as the non-parametric alternative of independent-samples t tests, the Mann-Whitney U test aims to test whether the two lexical learning groups ("Group") differ significantly in the two affective variables ("Self\_Efficacy" and "Motivation"). Since the questionnaire data are based on Likert-type ratings and are thus treated conservatively as ordinal responses, the Mann-Whitney U test is the primary comparative test, ranking raw scores for both groups to mitigate the confounding effects of potential skewness (Abu-Bader, 2021). Whether the two groups differ significantly in vocabulary learning self-efficacy and motivation after the instructional intervention is a finding that complements the differences in lexical learning orientations. Apart from these comparative tests, bivariate correlations using Pearson's correlation test further complement the mechanisms of lexical learning by examining the relationships between lexical learning performance ("Posttest") and affective states ("Self\_Efficacy" and "Motivation") (Abu-Bader, 2021).

## **4. RESULTS**

This section reports analytical results to test the hypotheses.

4.1. One-Way ANCOVA Results

The current data fulfill all assumptions of one-way ANCOVA. 1) Observations of “Pretest” and “Posttest” are independent of the conditions by “Group”. 2) The covariate “Pretest” and the dependent variable “Posttest” demonstrate a linear relationship through Pearson’s correlation coefficient of 0.665 with a significance level (sig.) less than 0.001 at the 0.010 level (Abu-Bader, 2021). 3) The interaction term “Group \* Pretest” is not statistically significant (sig. = 0.300 > 0.050), indicating that the regressive relationships between “Pretest” and “Posttest” are equal across the two groups (Abu-Bader, 2021). The Kolmogorov-Smirnov (K-S) and Shapiro-Wilk (S-W) tests display statistics greater than 0.050 for “Pretest” and “Posttest” in the respective groups by “Group” (see Table 2), reflecting normal distributions of “Pretest” and “Posttest” (Abu-Bader, 2021). Levene’s test produces a non-significant statistic (F = 2.635, sig. = 0.107 > 0.050), reflecting that variances of the residuals are similar in “Posttest” among the two groups (Abu-Bader, 2021). Fulfillment of these assumptions confirms the suitability of the current data for one-way ANCOVA.

Table 2. Summary of the descriptive and normality statistics for test-related variables by “Group”.

Test-related variable	Grouping factor	Descriptive statistics		Kolmogorov-Smirnov test <sup>a</sup>		Shapiro-Wilk test	
		Mean	SD	Statistic	Sig.	Statistic	Sig.
Pretest	Definition-oriented	60.360	7.178	0.056	0.200*	0.991	0.835
	Context-oriented	68.400	6.274	0.065	0.200*	0.982	0.337
Posttest	Definition-oriented	59.500	7.654	0.052	0.200*	0.989	0.731
	Context-oriented	73.110	7.471	0.074	0.200*	0.980	0.257

Note: SD: standard deviation. Sig: significance.  
 \*. This is a lower bound of the true significance.  
 a. Lilliefors significance correction.

According to the one-way ANCOVA results (see Table 3), “Posttest” scores are significantly different between the lexical learning groups after adjusting for the effect of “Pretest” (F (degree of freedom = 2, 157) = 173.707, sig. < 0.001). The covariate “Pretest” accounts for 52.5% of the variance in “Posttest” ( $\eta^2 = 0.525$ ), while the independent variable “Group” accounts for 23.8% of the variance in “Posttest” ( $\eta^2 = 0.238$ ). This ANCOVA model explains 57.5% of the total variance in “Posttest” ( $R^2 = 0.575$ , adjusted  $R^2 = 0.570$ ). According to original descriptive statistics (see Table 2), context-oriented lexical learning reflects an observable increase in lexical competence (from 68.400 in “Pretest” to 73.110 in “Posttest”), while definition-oriented lexical learning reveals a slightly adverse effect on lexical competence (From 60.360 in “Pretest” to 59.500 in “Posttest”). According to adjusted descriptive statistics (see Table 3), “Posttest” scores are higher for the context-oriented lexical learning group (Adjusted mean = 73.403, SD = 0.534) than the definition-oriented lexical learning group (Adjusted mean = 68.110, SD = 0.534). Therefore, based on the pre-intervention vocabulary performance adjustment, participants in context-oriented lexical learning significantly outperform those in definition-oriented lexical learning, and only context-oriented lexical learning yields a substantial enhancement in lexical competence. These findings support the acceptance of H1.

**Table 3.** One-way ANCOVA summary: “Posttest” by “Group” by “Pretest”.

Tests of between-subjects effects						
Source	Sum of squares	Degree of freedom	Mean square	F	Significance	$\eta^2$
Corrected Model	4838.413 <sup>a</sup>	2	2419.207	106.411	< 0.001	0.575
Intercept	2201.646	1	2201.646	96.841	< 0.000	0.382
Group	1117.009	1	1117.009	49.133	< 0.001	0.238
Pretest	3949.164	1	3949.164	173.707	< 0.001	0.525
Error	3569.332	157	22.735			
Total	809450.572	160				
Corrected total	8407.745	159				
Adjusted descriptive statistics						
Variable	Grouping factor		Mean	Standard deviation	95% confidence interval	
Posttest	Definition-oriented		68.110 <sup>b</sup>	0.534	67.056	69.164
	Context-oriented		73.403 <sup>b</sup>	0.534	72.35	74.457

**Note:** a.  $R^2 = 0.575$  (adjusted  $R^2 = 0.570$ ).  
 b. Covariates appearing in the model are evaluated at the following values: “Pretest” = 59.93.

**4.2. Mann-Whitney U Test and Pearson’s Correlation Test**

According to the Mann-Whitney U test (see Table 4), the “Self\_Efficacy” mean rank is higher for the participants in the context-oriented lexical learning group (92.44) than those in the definition-oriented lexical learning group (68.56) (see Figure 2). Besides, the “Motivation” mean rank is also higher for the participants in the context-oriented lexical learning group (93.48) than those in the definition-oriented lexical learning group (67.53) (see Figure 2). These differences are statistically significant because of a two-tailed significance level of 0.001 and less than 0.001 for “Self\_Efficacy” and “Motivation”, respectively, with the U values of 2245 (for “Self\_Efficacy”) 2162 (for “Motivation”) as well as the Z values of -3.272 (for “Self\_Efficacy”) and -3.558 (for “Motivation”). Therefore, context-oriented lexical learning yields significantly higher vocabulary learning self-efficacy and motivation than definition-oriented lexical learning, supporting the acceptance of H2 and H3.

**Table 4.** Mann-Whitney U test summary: “Self\_Efficacy” and “Motivation” by “Group”.

	Group	Ranks			Test statistics <sup>a</sup>		
		Mean rank	Sum of ranks	Mann-Whitney U	Wilcoxon W	Z	Asymptotic significance (2-tailed)
Self_Efficacy	Definition-oriented	68.56	5485	2245	5485	-3.272	0.001
	Context-oriented	92.44	7395				
Motivation	Definition-oriented	67.53	5402	2162	5402	-3.558	< 0.001
	Context-oriented	93.48	7478				

**Note:** a. Grouping Variable: “Group”.

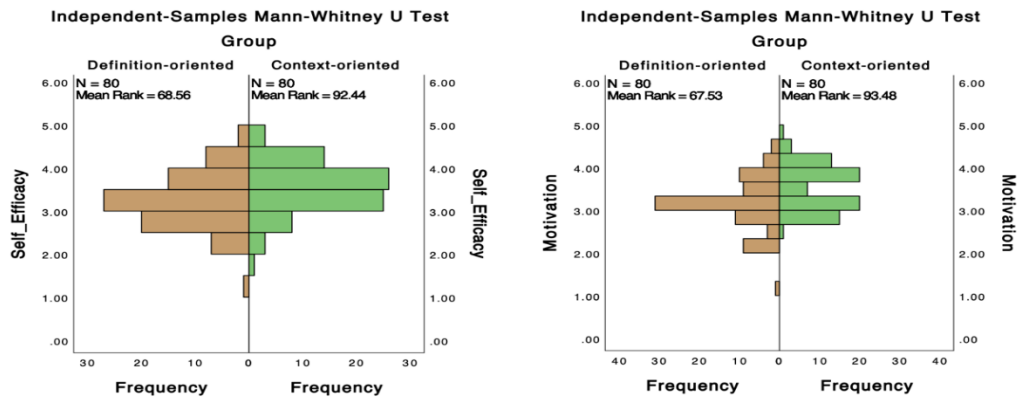


Figure 2. Visualized summaries of the Mann-Whitney U test for “Self\_Efficacy” (left) and “Motivation” (right).

Pearson’s correlation test shows statistically significant correlations for all variables at the 0.050 significance level in both definition- and context-oriented lexical learning conditions (see Table 5). “Posttest” reveals a positive correlation with “Self\_Efficacy” in both definition-oriented lexical learning condition (correlation coefficient = 0.480, sig. < 0.001) and context-oriented lexical learning condition (correlation coefficient = 0.604, sig. < 0.001), indicating that vocabulary learning self-efficacy has a positive relationship with lexical competence in both lexical learning conditions and confirming the acceptance of H4. Besides, “Posttest” shows a positive correlation with “Motivation” in both definition-oriented lexical learning condition (correlation coefficient = 0.258, sig. = 0.021 < 0.050) and context-oriented lexical learning condition (correlation coefficient = 0.425, sig. < 0.001), suggesting that vocabulary learning motivation is positively related to lexical competence in both lexical learning conditions and confirming the acceptance of H5. Additionally, “Self\_Efficacy” displays a positive correlation with “Motivation” in both definition-oriented lexical learning condition (correlation coefficient = 0.353, sig. < 0.001) and context-oriented lexical learning condition (correlation coefficient = 0.397, sig. < 0.001), demonstrating that vocabulary learning self-efficacy is positively associated with vocabulary learning motivation in both lexical learning conditions and confirming the acceptance of H6. Therefore, despite differences in the influences on lexical learning performance and affective states, definition- and context-oriented learning conditions share similar learning-facilitating mechanism in which lexical competence, self-efficacy, and motivation are positively interconnected.

Table 5. Pearson’s correlation test summary.

Group			Posttest	Self_Efficacy	Motivation
Definition-oriented	Posttest	Pearson correlation	1	0.480**	0.258*
		Sig. (2-tailed)		< 0.001	0.021
	Self_Efficacy	Pearson correlation	0.480**	1	0.353**
		Sig. (2-tailed)	< 0.001		0.001
Motivation	Pearson correlation	0.258*	0.353**	1	
	Sig. (2-tailed)	0.021	0.001		
Context-oriented	Posttest	Pearson correlation	1	0.604**	0.425**
		Sig. (2-tailed)		< 0.001	< 0.001
	Self_Efficacy	Pearson correlation	0.604**	1	0.397**
		Sig. (2-tailed)	< 0.001		< 0.001
Motivation	Pearson correlation	0.425**	0.397**	1	
	Sig. (2-tailed)	< 0.001	< 0.001		

Note: Sig.: significance.  
 \*\*. Correlation is significant at the 0.01 level (2-tailed).  
 \*. Correlation is significant at the 0.05 level (2-tailed).

## 5. DISCUSSION

This section discusses the significance of the findings, along with their implications and extensions in both theoretical and practical aspects.

### 5.1. Significance of Accepting H1-H6

The acceptance of H1 indicates that encountering and processing vocabulary in meaningful contexts rather than through decontextualized definitions alone can effectively promote lexical development in foreign language learning. This result is consistent with the emphasis on contextualized input, meaning negotiation, and deeper semantic processing in vocabulary development (Matsuoka et al., 2025). Contextualized encounters facilitate the inference of meaning, the observation of collocations, the registration of syntactic behaviors, and the association of forms with communicative functions (Hopp et al., 2024) thereby fostering durable and transferable lexical competence (Baxter et al., 2022). However, despite its usefulness for initial clarification or explicit explanations, a purely definition-based approach cannot sufficiently ensure stable retention or flexible use without integrating words into a broader semantic and pragmatic network (Saito et al., 2024). Notably, a slight decline in vocabulary performance in the definition-oriented lexical learning condition does not mean the inherently debilitating influence of that approach on vocabulary learning. Instead, that result indicates that definitional exposure alone cannot sufficiently sustain learning gains over the intervention period. Lexical knowledge acquired through definitions may remain inert if learners do not repeatedly activate it in authentic or quasi-authentic contexts, where they consolidate the lexical items into their usable vocabulary repertoire (Poliak et al., 2025). This interpretation is congruent with the multidimensionality of vocabulary knowledge, including denotational meaning, usage, collocation, register, syntactic distribution, and contextual appropriateness (Fernández-Fontecha et al., 2024).

The acceptance of H2 and H3 demonstrates that the pedagogical facilitation of context-oriented lexical learning is extensible from performative outcomes to affective experiences. This result is consistent with learners' preference for meaningful, interpretable tasks that are visibly connected to communicative use (Uchihara et al., 2025). When learners can witness and experience how lexical items function in real or simulated discourse, vocabulary learning becomes psychologically rewarding by enabling learners to perceive immediate usefulness and progress (Cancino & Viguera, 2024). Contextualized information encourages learners to regard vocabulary learning as participating in a meaningful process of understanding and expression rather than as memorizing detached linguistic objects (Shin & Won, 2024). This sense of meaningfulness cultivates learners' perceived ability to learn successfully, thereby enhancing self-efficacy and sustaining motivation by making learning tasks intrinsically valuable for long-term development (Derakhshan et al., 2025). In contrast, the lexical learning mode that privileges only definitional equivalence may impose a comparatively abstract and formalized learning burden, leading to learning experiences that are conceptually rigid, cognitively monotonous, or emotionally distant (Vanbuel, 2025). Notably, that interpretation does not imply that definition-oriented lexical learning necessarily demotivates all learners. Instead, contextualized lexical learning offers a more supportive emotional and motivational ecology than definition-based learning for a stronger sense of mastery and engagement (Sánchez et al., 2025).

The acceptance of H4, H5, and H6 suggests that both lexical learning modes, despite their between-group differences at the separated levels of lexical competence and affective factors, share a similar internal mechanism in which performance and affect reinforce each other. This result aligns with the close relationship between self-efficacy/motivation and learning achievement (Saito et al., 2025). When learners believe they can accomplish learning tasks, they invest more effort, persist longer, and interpret challenges more productively, contributing to better learning performance (Almayez et al., 2025). Meanwhile, successful performance offers evidence of learning

competence, which in turn strengthens self-efficacy (Janjić et al., 2026). Motivated learners are more willing to engage actively with learning tasks, and successful learning experiences sustain or increase motivation (Darvin & Norton, 2023). Self-efficacy and motivation are also mutually facilitating because perceived capability is both an antecedent and a consequence of spontaneous willingness of engagement (Paradowski & Jelińska, 2024). These reciprocal patterns reflect that lexical learning, regardless of differences in instructional modes, is not a solely cognitive process but a dynamic interaction between what learners can do and what they believe/feel about doing the learning tasks (Derakhshan & Fathi, 2024) implying the shared facilitative network of interconnected competence and affect in foreign language learning (Paradowski & Jelińska, 2024).

### *5.2. Implications and Extensions at the Theoretical and Practical Levels*

This study attempts to bring a philosophical distinction: Kant (1999) analytic versus synthetic judgments, into the area of foreign language pedagogy. The conceptual analogy between analytic judgments and definition-oriented lexical learning demonstrates that definitional explicitness and the decomposition of meaning into verbally stated components help learners grasp what a word denotes and how it can be conceptually distinguished from related items (Hamada et al., 2024). In contrast, the conceptual analogy between synthetic judgments and context-oriented lexical learning suggests that experiential embedding and use-based understanding enable learners to build knowledge of the word through its integration with sentences, discourse, situations, and communicative intentions (Matsuoka et al., 2025). Kant (1999) original epistemological categories offer a heuristic framework for reinterpreting lexical learning orientations. When the target is usable lexical and affective support, context-expanding learning has stronger educational power than concept-explicating (Uchihara et al., 2025). As a system of use, language, involving lexical items, gains full pedagogical significance through its connection to contexts of interpretation and production (Hopp et al., 2024).

As the extension of the theoretical discussion, this study proposes two broader pedagogical epistemologies corresponding to definition- and context-oriented lexical learning in foreign language education. Definition-oriented lexical learning is associated with an epistemology of semantic stability, assuming that words are effectively learnable through explicit conceptual capture (Tucker, 2025). In this case, learners' task is to identify and retain the correct meaning accurately (González-Fernández & Webb, 2024). Although this approach is useful in situations that privilege precision, an excessive dominance of this approach undermines the fluidity and variability of lexical use in authentic discourse (Haththotuwa Gamage, 2026). Context-oriented lexical learning is associated with an epistemology of semantic enactment, assuming that lexical knowledge is effectively developable through encountering meaning through use, relations, and communicative positioning (Alexiadou et al., 2026). In this case, learning extends beyond mere semantic recognition to inference, application, and interpretive flexibility (Hwang et al., 2024). According to the comparison of performative and affective outcomes, this learning orientation aligns with the developmental nature of foreign language competence and corresponds to the comprehensive pedagogical goal of knowing and using vocabulary appropriately and confidently (Sánchez et al., 2025).

The findings generate three practical implications for foreign language education. First, lexical pedagogy should highlight contextualized meaning-making rather than a predominant reliance on definitional explanations. Definitions, translations, or semantic paraphrases are embeddable in a wider sequence of contextual activities, e.g., sentence interpretation, short-text reading, collocation analysis, discourse completion, and communicative application (Matsuoka et al., 2025). Second, the design of lexical learning settings should respond to the fact that lexical performance and affective development are mutually reinforcing. Vocabulary teaching can be more effective when it deliberately includes opportunities for successful contextual inference, guided practice, and visible progress

for affective cultivation, which is as essential as learning performance (Kaveh, 2025). Third, vocabulary instruction may be organized according to a progressive sequence in which contextual enrichment follows definitional clarity. In this sense, learners receive an initial semantic anchor and then develop a deeper understanding through use (Calafato, 2025) thereby preserving the strengths of definition-oriented instruction while avoiding its decontextualization.

The practical value of this study is also extensible to foreign language education. Given its multidimensional nature, foreign language education is an encompassing area in which the contrast between definition- and context-oriented learning can be applied (Bárkányi & Brash, 2025). Without overdependence on isolated glossary entries, an efficient foreign language class is achievable through scenario-based use and interactional routines (Kaveh, 2025). This study supports a shift from treating language knowledge as a collection of detached units to regarding it as a network of usable resources for meaning-making processes (Muylle et al., 2022). This shift is highlightable in educational settings where language learning has historically been dominated by form-focused explanation, memorization of metalanguage, or exam-oriented definitional learning (Kole & Johnson, 2025). Consistent with the present findings, traditions may need to be rebalanced through more context-sensitive pedagogy that promotes both language-learning performance and sustained learner engagement (Paradowski & Jelińska, 2024).

## 6. CONCLUSION

This section summarizes the major findings and limitations, along with future research directions.

### 6.1. Major Findings

This study aims to compare the pedagogical effects of definition- and context-oriented lexical learning on learners' lexical competence and affective states. Grounded in Kant's philosophical distinction between analytic and synthetic judgments, the two target approaches to lexical learning reflect distinctive orientations in organizing information, grasping concepts, and reinforcing mastery. While definition-oriented lexical learning, corresponding to analytic judgments, emphasizes explicit denotational clarifications, context-oriented lexical learning, corresponding to synthetic judgments, highlights experiential expansion of use-based meaning. To objectively and observably measure differences among the lexical learning approaches, this study proposes H1-H3 to investigate whether the approaches exert different influences on post-intervention vocabulary performance and affective states. The results of one-way ANCOVA and Mann-Whitney U test demonstrate that context-oriented lexical learning outperforms definition-oriented lexical learning in both performative (post-intervention test performance of lexical competence) and affective dimensions (vocabulary learning self-efficacy and motivation).

Apart from instructional influences on separate factors, H4-H6 aim to investigate whether the two lexical learning approaches share similar mechanism of positive reciprocity between performative and affective factors. According to Pearson's correlation test, despite differences in the pedagogical influences across factors, both instructional approaches still share a similar internal pattern of positive interconnections among lexical competence, self-efficacy, and motivation. Therefore, based on Kant's philosophical theory of analytic versus synthetic judgments, this study confirms the pedagogical superiority of contextualized engagement in vocabulary learning and reinterprets how different modes of lexical learning may similarly shape language development at the philosophical and educational levels.

In conclusion, context-oriented lexical learning is more effective than definition-oriented lexical learning in promoting lexical competence, self-efficacy, and motivation. At the same time, both orientations share a common internal pattern of reciprocal relationships between performative and affective factors. This conclusion is consistent

with an appeal to contextualized, meaningful, and use-based instruction, while also reflecting a distinctive philosophical interpretation through Kant's theory of analytic versus synthetic judgments. From an educational perspective, this study suggests that the productivity of lexical learning depends on the synergistic integration of knowing what words mean in abstraction and understanding how words function in context. From a philosophical perspective, this study indicates that foreign language pedagogy may benefit from moving beyond a purely analytic clarification of concepts toward a more synthetic expansion of use-based meaning in authentic communicative experiences. Therefore, the significance of this study lies in identifying a more effective mode of lexical learning and in illuminating philosophical categories for concrete pedagogical choices in foreign language education.

## 6.2. Limitations and Future Directions

This study still reveals several limitations. First, because this study focuses on a specific learner population and instructional duration, the generalizability of the findings to other age groups, proficiency levels, or learning contexts remains to be investigated. Second, the affective variables in this study are limited to self-efficacy and motivation, prompting future research to expand the framework to include anxiety, engagement, enjoyment, or perceived usefulness. Third, the philosophical interpretation based on Kant's framework remains conceptual rather than directly measurable. Future studies may operationalize analytic- and synthetic-like instructional features more explicitly, paving the way for examining their relationships with different aspects of language learning.

Future research may also explore whether a blended model that combines definitional explanation and contextual application can outperform definition- or context-oriented lexical learning in isolation. Additionally, future studies can investigate whether learners with different cognitive styles, proficiency profiles, or educational backgrounds respond differently to the two lexical learning modes. These directions increase the research complementarity.

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