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COGNITIVE STRATEGIES FOR VOCABULARY ACQUISITION IN FOREIGN LANGUAGE LEARNING AT UNIVERSITY LEVEL**Tadjibaeva Adila Ergashevna,**

Fergana state technical university Acting Associate Professor

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Abstract: This study investigates the role of cognitive strategies in foreign language vocabulary acquisition at the university level. Grounded in cognitive learning theory and the depth of processing framework, the research examines how different cognitive strategies - such as repetition, contextual usage, inferencing, imagery, and semantic mapping - affect students' vocabulary learning outcomes. A mixed-method research design was employed, combining quantitative and qualitative approaches to ensure comprehensive analysis and data triangulation. The participants were 65 first-year university students with similar English proficiency levels. Data were collected through a vocabulary learning strategies questionnaire, a vocabulary knowledge test, and semi-structured interviews. Quantitative findings revealed a significant positive correlation between the frequency of cognitive strategy use and vocabulary achievement. Qualitative analysis further indicated that high-achieving students employed a wider range of elaborative strategies, while low-achieving students relied mainly on mechanical repetition and translation. The findings highlight the necessity of explicit instruction in cognitive vocabulary learning strategies and suggest integrating systematic strategy training into university-level EFL and ESP curricula to enhance vocabulary retention and learner autonomy.

Keywords: cognitive strategies, vocabulary acquisition, foreign language learning, university students, vocabulary learning strategies.

Annotatsiya: Mazkur tadqiqot universitet darajasida xorijiy til lug'at boyligini o'zlashtirishda kognitiv strategiyalarning rolini o'rganishga bag'ishlangan. Kognitiv o'rganish nazariyasi va chuqur qayta ishlash konsepsiyasiga asoslangan holda, tadqiqot takrorlash, kontekstual qo'llash, xulosa chiqarish, tasvirlash va semantik xaritalash kabi kognitiv strategiyalarning talabalar lug'at o'zlashtirish natijalariga ta'sirini tahlil qiladi. Tadqiqotda aralash metodologiya qo'llanilib, miqdoriy va sifatli ma'lumotlar uyg'unlashtirildi. Tadqiqot ishtirokchilari bir xil til darajasiga ega bo'lgan 65 nafar birinchi bosqich talabalardan iborat bo'ldi. Ma'lumotlar so'rovnoma, lug'at bilimni baholash testi va yarim tuzilgan intervyular orqali to'plandi. Natijalar kognitiv strategiyalardan foydalanish darajasi bilan lug'at bilimlari o'rtasida ijobiy bog'liqlik mavjudligini ko'rsatdi. Sifatli tahlil esa yuqori natijalarga erishgan talabalar kengroq va chuqurroq strategiyalardan foydalanganini, past natijali talabalar esa asosan mexanik takrorlashga tayanishini aniqladi. Tadqiqot natijalari kognitiv lug'at o'rganish strategiyalarini aniq va tizimli o'rgatish zarurligini asoslaydi.

Kalit so'zlar: kognitiv strategiyalar, lug'at boyligini o'zlashtirish, xorijiy tilni o'rganish, universitet talabalari, lug'at o'rganish strategiyalari.

Аннотация: Данное исследование посвящено изучению роли когнитивных стратегий в усвоении словарного запаса иностранного языка на университетском уровне. Опираясь на когнитивную теорию обучения и теорию глубины переработки информации, в работе анализируется влияние таких когнитивных стратегий, как повторение, контекстуальное использование, умозаключение, образное представление и семантическое картирование, на результаты усвоения лексики. В исследовании использован смешанный метод, объединяющий количественные и качественные подходы, что позволило обеспечить всесторонний анализ данных. В исследовании приняли участие 65 студентов первого курса с одинаковым уровнем владения английским языком. Сбор данных осуществлялся с помощью анкетирования, теста на

знание лексики и полу структурированных интервью. Количественные результаты выявили значимую положительную корреляцию между частотой использования когнитивных стратегий и уровнем лексической компетенции. Качественный анализ показал, что успешные студенты используют более широкий спектр углублённых стратегий, тогда как менее успешные учащиеся преимущественно полагаются на механическое повторение и перевод. Полученные результаты подтверждают необходимость целенаправленного обучения когнитивным стратегиям в рамках вузовского обучения иностранным языкам.

Ключевые слова: когнитивные стратегии, усвоение словарного запаса, изучение иностранного языка, студенты университета, стратегии изучения лексики.

Introduction. Vocabulary acquisition is a fundamental component of foreign language learning and a decisive factor in learners' communicative competence. At the university level, students are expected to master a substantial amount of academic and professional vocabulary, which requires not only exposure to lexical items but also the effective use of learning strategies. Among various language learning strategies, cognitive strategies play a crucial role as they involve direct mental manipulation of linguistic material, such as repetition, organization, elaboration, and contextualization of new words.

According to cognitive learning theory, meaningful processing of information leads to deeper retention and more effective recall of lexical items [1]. In foreign language education, cognitive strategies enable learners to actively engage with vocabulary, transforming input into intake. Despite their importance, many university students rely on surface-level memorization and are often unaware of systematic cognitive techniques that could enhance their vocabulary learning outcomes.

The present study aims to examine the types of cognitive strategies used by university students in learning foreign language vocabulary and to analyze the relationship between the use of these strategies and vocabulary acquisition success.

Literature Review. Cognitive strategies are commonly defined as learning actions that involve direct manipulation or transformation of learning materials to improve comprehension and retention [5]. In the context of vocabulary learning, such strategies include repetition, note-taking, use of imagery, grouping, inferencing, and contextual usage. Schmitt (1997) classifies vocabulary learning strategies into determination, social, memory, cognitive, and metacognitive categories, emphasizing that cognitive strategies, such as verbal repetition and written rehearsal, are essential for consolidating lexical knowledge [7]. Similarly, Nation highlights that repeated exposure and deliberate practice are critical for transferring vocabulary items from short-term to long-term memory [4].

Research indicates that successful language learners employ a wider range of cognitive strategies more frequently than less successful learners [6]. For example, the use of semantic mapping and contextual guessing has been shown to significantly enhance vocabulary retention and comprehension [3].

Moreover, cognitive strategies are closely linked to depth of processing theory, which suggests that words processed semantically and contextually are remembered better

than those learned through rote memorization [2]. This theoretical framework underscores the importance of teaching cognitive strategies explicitly in university-level foreign language instruction.

Research Methodology. During 2023-2025 a **mixed-method researches** to gain a comprehensive understanding of how university students employ cognitive strategies in foreign language vocabulary acquisition were conducted by several scientists. Mixed methods allowed researchers to combine the statistical strength of quantitative data with the explanatory depth of qualitative inquiry [9] and enhance the validity and reliability of results through triangulation [8]. The quantitative component examined patterns and relationships between strategy use and vocabulary achievement, while the qualitative component provided in-depth insights into learners' strategic behaviors and perceptions.

The participants were 60 undergraduate EFL students, aged 18–22, from both language-related and non-language-related disciplines. All demonstrated similar intermediate English proficiency, minimizing variability due to language level [3, 4].

Data were collected using three instruments to ensure methodological rigor. First, a Vocabulary Learning Strategies Questionnaire, adapted from Schmitt's taxonomy, measured cognitive strategies such as repetition, note-taking, lexical grouping, and contextual application [4, 6, 7]. Second, a Vocabulary Knowledge Test assessed both receptive and productive vocabulary knowledge [4]. Third, semi-structured interviews with 10 purposively selected participants explored individual experiences, preferences, and challenges related to strategy use [8].

The research was conducted during regular class hours to maintain a natural environment and reduce test anxiety. Questionnaires and tests were administered under standardized conditions [9], and interviews were audio-recorded with consent [8].

Quantitative data were analyzed using descriptive statistics and correlation analysis to examine the relationship between strategy use and vocabulary outcomes [3]. Qualitative data were analyzed through thematic analysis to identify recurring patterns in learners' strategic behavior [10]. This integrated approach provided a holistic understanding of cognitive strategies in vocabulary acquisition at the university level.

The present study takes as a sample the above-mentioned research approaches as a template. The research employed a mixed-method research design, combining quantitative and qualitative approaches to obtain a comprehensive understanding of cognitive strategy use in vocabulary acquisition. This design allows for triangulation of data and enhances the validity of findings

65 first-year university students were engaged in research activities. All participants were non-native speakers of English and had similar educational backgrounds. First-year students were selected because they are in a transitional phase that requires adaptation to academic and professional lexical demands.

Three instruments were used for data collection:

1. Vocabulary Learning Strategies Questionnaire: A structured questionnaire adapted from Schmitt's (1997) and Oxford's (2011) frameworks was used to identify students' use of cognitive strategies such as repetition, note-taking, grouping, imagery, inferencing, and contextual usage. Responses were recorded on a five-point Likert scale.

2. Vocabulary Knowledge Test: A Vocabulary Knowledge Test was designed to assess both receptive and productive vocabulary knowledge in an ESP context. The test included multiple-choice items, gap-filling tasks, and contextualized vocabulary usage tasks.

3. Semi-Structured Interviews: Semi-structured interviews were conducted with 22 students selected based on their vocabulary test results (high-, mid-, and low-achieving learners). The interviews focused on students' awareness, preferences, and perceptions of cognitive vocabulary learning strategies.

Obtained data were collected in three stages. First, the questionnaire was administered during ESP classes. Second, the vocabulary test was conducted one week later. Finally, interviews were held after the preliminary analysis of quantitative data to explore emerging patterns in greater depth.

The research conducted quantitative and qualitative data analysis- (1) quantitative data were analyzed using descriptive statistics (means and standard deviations) and correlation analysis to examine relationships between cognitive strategy use and vocabulary achievement; (2) qualitative data from interviews were analyzed using thematic analysis to identify recurring themes related to strategy awareness and usage.

Results. Quantitative Results. The questionnaire results indicated that students most frequently used repetition, contextual usage, and inferencing strategies. Less frequent use was observed for imagery and semantic mapping, suggesting limited engagement with elaborative cognitive strategies.

Vocabulary Knowledge Test results showed noticeable differences among students with varying levels of strategy use. Correlation analysis revealed a positive relationship between the frequency of cognitive strategy use and vocabulary test performance. Students who reported using a wider range of cognitive strategies achieved higher scores on the vocabulary test.

1. Frequency of Cognitive Strategy Use

Table 1 presents the mean frequency of cognitive strategies reported by the 65 first-year university students. The most frequently used strategies were repetition ($M = 4.12$, $SD = 0.63$), contextual usage ($M = 3.98$, $SD = 0.71$), and inferencing ($M = 3.85$, $SD = 0.68$). Strategies such as imagery ($M = 2.74$, $SD = 0.81$) and semantic mapping ($M = 2.58$, $SD = 0.79$) were used less frequently, indicating limited engagement with elaborative cognitive techniques.

Table 1. Mean Frequency of Cognitive Vocabulary Learning Strategies (N = 65)

Cognitive Strategy	Mean	Standard Deviation
Repetition	4.12	0.63
Contextual usage	3.98	0.71
Inferencing	3.85	0.68
Note-taking	3.46	0.74
Grouping	3.21	0.69
Imagery	2.74	0.81
Semantic mapping	2.58	0.79

2. Vocabulary Knowledge Test Scores by Strategy Use Level

Students who reported higher use of cognitive strategies achieved significantly higher scores on the Vocabulary Knowledge Test (Table 2). The high-strategy group ($n = 21$) had a mean score of 82.6% ($SD = 6.4$), the medium-strategy group ($n = 24$) scored 71.3% ($SD = 7.1$), and the low-strategy group ($n = 20$) scored 63.8% ($SD = 8.2$). This suggests a positive association between strategy use and vocabulary achievement.

Table 2. Vocabulary Knowledge Test Scores by Level of Cognitive Strategy Use

Strategy Use Level	Number	Mean Score (Percentage)	Standard Deviation
High	21	82.6	6.4
Medium	24	71.3	7.1
Low	20	63.8	8.2

3. Correlation Between Strategy Use and Vocabulary Achievement

Correlation analysis (Table 3) revealed a strong, positive relationship between overall cognitive strategy use and vocabulary test scores ($r = .61$, $p < .01$). This indicates that students who employed a wider range of cognitive strategies tended to achieve higher vocabulary scores, supporting the importance of cognitive engagement in vocabulary learning.

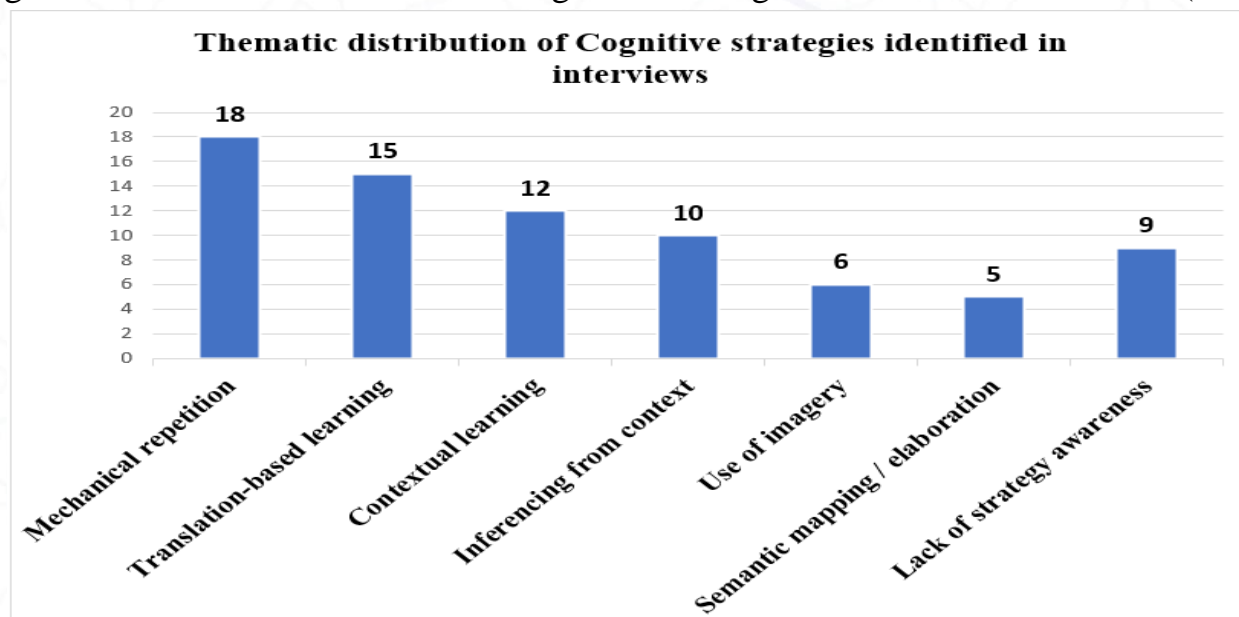
Table 3. Correlation Between Cognitive Strategy Use and Vocabulary Achievement

Variables	r (Correlation Coefficient)	p (Significance Value)
Overall cognitive strategy use \times Vocabulary test score	.61	< .01

Qualitative Results. Thematic Analysis of Interviews.

Semi-structured interviews with 22 students identified patterns in cognitive strategy awareness and usage. Thematic analysis (Diagram 1) revealed that most students relied on mechanical repetition and translation-based strategies. High-achieving students demonstrated greater use of contextual learning and inferencing, whereas low-achieving students expressed uncertainty about applying strategies effectively. Less frequently used strategies included imagery and semantic mapping, consistent with the questionnaire data.

Diagram 1. Thematic Distribution of Cognitive Strategies Identified in Interviews (n = 22)



The findings of the study confirm that cognitive strategies play a significant role in foreign language vocabulary acquisition at the university level. The positive correlation between strategy uses and vocabulary achievement supports previous research indicating that successful language learners employ a wider range of cognitive strategies more frequently [3, 6].

The dominance of repetition-based strategies suggests that many students rely on surface-level processing, which may limit long-term retention. In contrast, students who engaged in deeper processing through contextualization and inferencing demonstrated higher vocabulary knowledge, consistent with the depth of processing theory [2].

The qualitative findings further highlight the need for explicit instruction in cognitive vocabulary learning strategies, particularly elaborative techniques such as semantic mapping, imagery, and contextual analysis. Integrating strategy training into ESP courses could enhance students' autonomy and improve vocabulary learning outcomes.

Discussion. The results of this study indicate that cognitive strategies are a crucial component of effective vocabulary acquisition in university-level foreign language learning. Quantitative findings revealed that strategies such as repetition, contextual usage, and inferencing were most frequently employed, while imagery and semantic mapping were less commonly used. These patterns suggest that students tend to rely on surface-level strategies, which may facilitate short-term recall but are less effective for long-term retention. This aligns with prior research highlighting the importance of both repetition and deliberate practice for transferring vocabulary to long-term memory [4,6].

The positive correlation between cognitive strategy uses and vocabulary test scores ($r = .61$, $p < .01$) underscores the educational significance of these strategies. Students who engaged in a broader range of cognitive strategies achieved higher vocabulary knowledge, supporting the depth of processing framework, which posits that semantically and

contextually processed words are remembered more effectively than those learned through rote memorization [2]. These findings are consistent with prior studies emphasizing that successful learners actively manipulate and contextualize new lexical items [3,7].

Qualitative data from interviews reinforced these findings by illustrating that high-achieving students were more aware of and utilized elaborative strategies such as contextual learning and inferencing, whereas low-achieving students depended heavily on repetition and translation. This highlights the need for explicit instruction in cognitive strategies, particularly elaborative techniques such as semantic mapping and imagery, to support deeper processing and improved vocabulary retention.

Furthermore, the integration of quantitative and qualitative results emphasizes that strategy awareness alone is insufficient; effective application and varied use of cognitive strategies are critical for improving vocabulary outcomes. Educators should therefore incorporate systematic strategy training within ESP and EFL curricula to enhance both learner autonomy and academic language competence.

Conclusion. The study demonstrates that cognitive strategies significantly influence university students' foreign language vocabulary acquisition. Frequent and varied use of strategies such as repetition, contextual usage, and inferencing is associated with higher vocabulary achievement. However, many students underutilize elaborative strategies, indicating a gap in awareness and application.

These findings suggest several pedagogical implications:

1. Explicit strategy instruction should be incorporated into language courses to develop students' strategic competence.
2. Emphasis should be placed on elaborative strategies (semantic mapping, imagery, contextualization) to promote deeper processing and long-term retention.
3. Curriculum designers should integrate strategy training into ESP and general EFL courses to foster autonomous learning and improve academic and professional vocabulary acquisition.

Overall, the study supports the integration of cognitive strategy instruction as a fundamental component of university-level foreign language teaching, reinforcing both theoretical frameworks and empirical evidence on effective vocabulary learning.

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