The Role of Morphological Awareness in Second Language Acquisition: Affixation as a Vocabulary Learning Strategy

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Abstract

This research investigates the role of morphological awareness in second language acquisition. The study focuses on affixation as a vocabulary learning strategy and examines whether instruction on affixation helps in vocabulary retention in learners of English as a foreign language (EFL). A total of 25 high school students in Serbia (aged 17–18), distributed across proficiency levels A1, A2, and B1 (based on a general English proficiency test), participated in a pre-/post-test intervention. The pre-test consisted of 60 words grouped by shared derivational affixes (e.g., un-, dis-, -less), while the post-test contained the same words randomly arranged, without affix cues. Instruction was delivered in the learners' mother tongue (Serbian) as a scaffolding strategy to support comprehension; multilingualism or cross-linguistic transfer was not explicitly analyzed. The instruction consisted of three sessions, each introducing approximately 20 new words through contextualized examples, morphological analysis, and guided word-formation tasks. The results of the study indicate that brief, targeted lessons on prefixes and suffixes can improve vocabulary acquisition, especially for lower-proficiency learners. The use of the learners' mother tongue as a support, combined with tasks requiring active word formation, can effectively enhance morphological awareness and provide practical guidance for planning an EFL curriculum.

Keywords: morphological awareness, affixation, vocabulary acquisition, EFL learners, second language acquisition

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Introduction

Morphological awareness represents a fundamental component of metalinguistic knowledge, enabling learners to identify and analyze the morphemic structure of words and to manipulate it appropriately. This ability is particularly valuable in second language acquisition, as recognizing systematic patterns of affixation (prefixes and suffixes) can greatly facilitate vocabulary learning, the primary goal in acquiring a second language. More efficient vocabulary expansion constitutes a crucial aspect of language learning; thus, the ability to generalize morphological rules across related lexemes enables the internalization of new lexical items. Reducing lexical opacity and mitigating the difficulty of unknown vocabulary become possible by decomposing complex words into smaller, semantically meaningful units. Although morphological strategies are not universally applicable to all lexical items (especially irregular or idiomatic forms), they nonetheless provide a framework that supports the language learning process. Morphological awareness helps learners analyze the morphemic structure of words and manipulate word parts in ways that support vocabulary learning (Carlisle, 1995).

Literature Review

Early research in psychology has shown that organizing information into categories facilitates faster memorization, while repetition aids in transferring information to long-term memory. In this context, categorizing words according to their prefixes and suffixes may support more efficient vocabulary acquisition in foreign language learners. This approach departs from traditional methods, such as extracting and explaining words individually from a text, offering a more systematic and cognitively supportive strategy for vocabulary learning. As Kim (2013) argues, affixation-based instruction can help learners expand their knowledge of meaning and grammatical categories and may also support longer-term vocabulary retention.

Additional research has also examined the broader relationship between morphological awareness and vocabulary knowledge in ESL contexts. For example, Zheng (2023) found that Chinese tertiary ESL learners demonstrated a good level of morphological awareness and strong academic vocabulary knowledge, although no statistically significant correlation was found between morphological awareness and vocabulary level. This suggests that the relationship between morphological awareness and vocabulary development may vary depending on learner profile, instructional background, and the specific aspects of vocabulary being measured.

As previous research has shown, morphological awareness is not acquired instantaneously but develops gradually over time through exposure to linguistic structures and increasing language proficiency (Anglin, 1993; Ku & Anderson, 2003), evolving through continuous exposure to word-formation patterns and explicit attention to morphemic structures. Furthermore, affix knowledge plays an important role in the processing of morphologically complex words, as exposure to words contributes to the development of high-quality lexical representations that support accurate and efficient word recognition (Carlisle & Katz, 2006). In line with this, explicit affix instruction in a regular English language classroom in an EFL context was shown to be a useful learning tool: “explicit instruction of English affixes facilitated the acquisition of vocabulary knowledge (e.g., meaning and linguistics)” (Sukying & Matwangsaeng, 2023, p. 60).

Morphological awareness and vocabulary growth develop in tandem, forming a reciprocal relationship. As learners encounter and acquire more lexical items, their sensitivity to

morphological structures (particularly high-frequency prefixes and suffixes) becomes more refined. This bidirectional development highlights the importance of morphological instruction at all stages of language acquisition. Considering multiple proficiency levels (e.g., A1, A2, B1) also provides valuable insights into how affixation supports vocabulary growth across learners of different linguistic competence. For novice learners with limited vocabulary, morphological strategies serve as foundational tools for decoding and memorizing new words. For advanced learners, they consolidate existing lexical knowledge and facilitate the acquisition of more complex or academic vocabulary. Consequently, affixation plays a crucial role not only in the initial stages of lexical development but also in its continued expansion and refinement.

Previous research has also shown that morphological awareness contributes to broader aspects of L2 literacy. In a study of young Chinese EFL learners, Zhang and Koda (2013) found that derivational and compound awareness independently predicted English reading comprehension, even after vocabulary and grammatical knowledge were taken into account. Their findings also showed that derivational awareness was less developed than inflectional and compound awareness, suggesting that this aspect of morphological knowledge may require more explicit support and greater exposure in foreign language learning contexts. This is relevant for the present study, which focuses on derivational affixation as a strategy for vocabulary learning, since it suggests that derivational morphology may be both developmentally demanding and instructionally important.

Empirical evidence confirms these theoretical insights. In a quasi-experimental study with 221 Thai EFL learners, Sukying and Matwangsaeng (2023) found that explicit morphological awareness instruction significantly enhanced both receptive and productive vocabulary knowledge. Similarly, in a ten-week study with 54 Korean students, Kim (2013) compared two groups (one trained in affixation strategies and one without such exposure) and reported that the affix-trained group acquired vocabulary more quickly and efficiently. These results demonstrate that understanding the structure and function of prefixes and suffixes can substantially enhance word learning and overall vocabulary acquisition.

Bound Morphemes, Inflectional and Derivational Affixes

In linguistic morphology, bound morphemes are defined as units that cannot occur independently but require attachment to a lexical base in order to convey meaning. Within this category, a fundamental distinction is drawn between inflectional and derivational affixes, which differ both in function and in their relevance for language learning.

Inflectional affixes primarily serve grammatical purposes: they encode features such as number, tense, or degree without altering the core semantic content or the syntactic category of the base word. As such, they are generally predictable and form part of a closed system of grammatical markers.

Derivational affixes, by contrast, play a central role in lexical development. They either modify the meaning of a base or change its grammatical category, thereby enabling the formation of new lexical items. This process is particularly relevant in the context of second language acquisition, as it provides learners with a systematic mechanism for expanding vocabulary beyond memorization of isolated forms.

Given this distinction, the present study focuses specifically on derivational affixation as a strategy for vocabulary learning, as it directly contributes to learners' ability to recognize, interpret, and produce morphologically complex words.

Methodology

This study investigated the effectiveness of affixation as a vocabulary learning strategy among learners of English as a foreign language (EFL) at different proficiency levels. Specifically, it examined whether explicit instruction in affixation facilitated vocabulary retention and productive word formation.

Participants were divided into three proficiency groups (A1, A2, and B1) based on their placement test results. All participants were high school students in a formal educational setting and had received at least two years of prior English instruction. Proficiency groups were determined based on a general placement test, administered prior to the intervention. Participation was voluntary, and all learners completed both phases of the study.

The research employed a pre-test/post-test design. Both tests consisted of 60 items assessing morphological awareness through the recognition and production of morphologically complex words. The pre-test presented items grouped according to shared derivational affixes, while the post-test included the same items presented in a randomized order, without affix grouping.

Following the pre-test, participants received explicit instruction in English affixation. Instruction was delivered in the learners' first language (Serbian) as a scaffolding strategy and consisted of three instructional sessions. Each session introduced approximately 20 new words through contextualized examples, explicit morphological analysis, and guided word-formation tasks.

Participants' progress was assessed by comparing pre-test and post-test performance, focusing on their ability to recognize, recall, and accurately use affixed words. Because the same participants completed both testing phases, within-group comparisons were conducted using paired-samples *t*-tests. Differences in improvement across proficiency levels were examined using a one-way (ANOVA) on gain scores. The results may contribute to the broader field of applied linguistics by offering insights into the cognitive mechanisms underlying vocabulary acquisition in L2 learners.

Results

Participants were divided into three proficiency groups based on a placement test: A1 (beginner, $n = 6$), A2 (elementary, $n = 5$), and B1 (intermediate, $n = 14$). All participants completed both the pre-test and the post-test, each consisting of 60 items assessing recognition and production of morphologically derived words.

Descriptive statistics for pre- and post-test scores are presented in Table 1. At the pre-test stage, the A1 group demonstrated minimal morphological awareness ($M = 1.00$, $SD = 1.55$), corresponding to approximately 1.7% correct responses. The A2 group achieved a slightly higher mean score ($M = 4.80$, $SD = 5.72$; 8.0% correct), while the B1 group performed substantially better ($M = 45.07$, $SD = 13.89$; 75.1% correct).

Following the instructional intervention, all three groups showed improved performance. The A1 group increased to a mean of 14.83 (SD = 3.06; 24.7% correct), the A2 group to 20.80 (SD = 8.87; 34.7% correct), and the B1 group to 50.86 (SD = 10.93; 84.8% correct). Absolute gains were largest for the lower-proficiency groups (A1 and A2), while the B1 group showed a more moderate increase, consistent with a ceiling effect.

Table 1
Descriptive Statistics for Pre- and Post-test Scores by Proficiency Level

Group	n	Pre-test M (SD)	Post-test M (SD)
A1	6	1.00 (1.55)	14.83 (3.06)
A2	5	4.80 (5.72)	20.80 (8.87)
B1	14	45.07 (13.89)	50.86 (10.93)

Because the same participants completed both testing phases, within-group comparisons were conducted using paired-samples *t*-tests. All three groups demonstrated statistically significant improvement from pre-test to post-test (Table 2). The A1 group showed the largest effect, $t(5) = 10.23$, $p < .001$, Cohen's $d = 4.18$, indicating a very large instructional impact. The extremely large effect size for the A1 group should be interpreted with caution, as it is partly inflated by very low baseline scores. The A2 group also showed a significant increase, $t(4) = 3.75$, $p = .02$, $d = 1.68$. The B1 group exhibited a statistically significant, though comparatively smaller, improvement, $t(13) = 5.38$, $p < .001$, $d = 1.44$.

Table 2
Paired-Samples t-test Results for Pre- and Post-test Comparisons

Group	t(df)	p	Cohen's d
A1	10.23 (5)	< .001	4.18
A2	3.75 (4)	= .020	1.68
B1	5.38 (13)	< .001	1.44

Normality of gain scores was not seriously violated within groups; however, Levene's test indicated unequal variances across proficiency levels. Therefore, ANOVA results should be interpreted with caution.

To examine differences in improvement across proficiency levels, gain scores (post-test minus pre-test) were analyzed using one-way ANOVA. The analysis revealed a significant main effect of proficiency level on improvement, $F(2, 22) = 9.01$, $p = .001$, with a large effect size ($\eta^2 = .45$), indicating that proficiency level explained a substantial proportion of variance in learning gains. Because Levene's test suggested unequal variances, these results were interpreted with caution; a Welch ANOVA confirmed the robustness of the group effect, Welch's $F(2, 8.25) = 11.27$, $p = .004$.

Discussion

Pre-test Performance by Proficiency Level

In the pre-test, there were clear differences in morphological task performance across proficiency levels. Beginner learners (A1) scored extremely low, with an average accuracy of only 1.7% (near-zero performance) on the morphological items. Elementary learners (A2) performed slightly better but still had a very low mean accuracy of 8.0%, indicating that they answered only a few items correctly on average. In contrast, the intermediate group (B1) demonstrated a much higher initial accuracy of ~75.1%, correctly answering the majority of the items. This suggests that, within the present sample, morphological awareness was minimal at the A1/A2 levels but fairly well-developed by the B1 level. Lower-level learners struggled with nearly all morphological transformations, whereas B1 learners already knew many affixed words, reflecting their greater vocabulary and language experience.

The pre-test results highlight a substantial proficiency gap in morphological knowledge. For example, A1 participants collectively answered almost none of the 60 items correctly, showing that beginners could not produce the required prefixed/suffixed forms for the given base words (e.g. failing to form *unhappy* from "happy" meaning *nesrećan*). A2 learners showed slightly higher success on a few very common items (notably those with the prefix un-), but still zeroed out on most items. Meanwhile, B1 learners knew most of the common derivatives – for instance, every B1 student correctly formed *unlucky*, *unusual*, and *unkind* (100% accuracy on those items in pre-test), and nearly all knew *unhappy* (93% got it right). Only the more complex or less familiar formations posed problems for B1 in the pre-test (e.g. *misunderstand* was answered correctly by just 7% of B1s, and *impossible* by 21%). This pattern indicates that without prior instruction, beginners lack morphological awareness for constructing new words, while intermediate learners appear to possess partial or previously acquired knowledge of many common affixed forms but may still miss more advanced or irregular ones.

Post-test Performance and Improvement

After the instructional period focused on prefixes and suffixes, all groups improved their performance in the post-test, although the extent of improvement varied by level. A1 learners' accuracy jumped from ~1.7% to 24.7%, indicating they went from virtually no correct answers to about one quarter of the items correct on average. A2 learners improved from 8.0% to 34.7% accuracy, also a marked increase. B1 learners rose from 75.1% to 84.8% correct on average, a more modest increase in percentage points (since they were already high) but still a notable improvement.

To ensure these improvements are statistically meaningful, we compared each group's pre- vs post-test scores using paired analyses. The gains for all three groups were statistically significant. In particular, A1's improvement was highly significant (paired t-test, $p < 0.001$), reflecting the dramatic learning effect for beginners (with a very large effect size $d \approx 4.18$). A2's improvement was also significant ($p \approx 0.02$), indicating a meaningful gain (large effect size $d \approx 1.68$). B1 learners' improvement, though smaller in absolute terms, was statistically significant as well ($p < 0.001$, $d \approx 1.44$), suggesting even advanced students benefited from the focused instruction. All improvements reached statistical significance.

Overall, the results indicate that morphological instruction led to measurable improvements across all proficiency levels, with the most pronounced gains observed among lower-

proficiency learners. While A1 and A2 learners showed substantial increases in their ability to produce derived forms, B1 learners primarily exhibited consolidation and refinement of existing knowledge.

Interpretation of Results

The present study examined the effect of explicit instruction in affixation on morphological awareness and vocabulary development among EFL learners across different proficiency levels. The findings indicate statistically significant improvement in all groups, with particularly pronounced gains among lower-proficiency learners.

The largest improvement was observed in the A1 and A2 groups. Beginner learners demonstrated near-zero performance at pre-test, followed by substantial gains in the post-test, resulting in very large effect sizes. These results should be interpreted with caution, as low baseline scores tend to inflate relative gains. Nevertheless, the findings suggest that even brief, targeted instruction can effectively enhance morphological awareness when learners lack prior systematic knowledge of word formation.

A2 learners showed a similarly strong response to instruction, indicating that early-stage learners are especially receptive to explicit teaching of prefixes and suffixes. This supports previous research emphasizing the gradual development of morphological awareness and the importance of explicit instruction (Anglin, 1993; Bowers et al., 2010; Sukying, 2020).

Although the B1 group exhibited smaller gains, their improvement remained statistically and pedagogically meaningful. Given their relatively high pre-test performance, further progress was constrained by a ceiling effect. Nonetheless, the results indicate that morphological instruction continues to support vocabulary consolidation and refinement at intermediate levels (Amirjalili & Jabbari, 2018).

Between-group analysis further confirmed that proficiency level plays a significant role in moderating instructional effects. The large proportion of variance explained ($\eta^2 = .45$) suggests that initial linguistic competence strongly influences learning outcomes. This finding aligns with prior research showing that morphological instruction is particularly beneficial for learners with limited lexical resources (Bowers et al., 2010).

Item-level analyses (see Appendix A) revealed that learners most successfully acquired high-frequency and semantically transparent affixes, particularly the negative prefix *un-*. In contrast, lower-frequency or more abstract derivations (e.g., *-ity*, *mis-*) remained challenging, especially for lower-proficiency learners. This suggests that morphological transparency and lexical familiarity play a crucial role in mediating instructional effectiveness.

Pedagogical Implications

The results advocate for integrating explicit morphological instruction into standard EFL curricula. Teaching prefixes, suffixes, and base word analysis equips learners with strategies to decode and construct new vocabulary autonomously. Moreover, such instruction enhances reading comprehension and lexical retention, as learners begin to recognize systematic relationships between word parts and meanings. These results confirm previous evidence that morphological awareness is not merely a byproduct of vocabulary learning but an essential

cognitive skill that supports ongoing lexical development (Amirjalili & Jabbari, 2018; Badawi, 2019).

Given the pronounced benefits observed among lower proficiency groups, educators are encouraged to introduce morphological awareness training early in the learning process. Activities such as word-family mapping, affix identification, and derivational transformation tasks can foster analytical thinking about word structure and promote vocabulary depth.

Limitations and Future Research

Several limitations should be acknowledged. The sample size was relatively small, and group sizes were uneven, which may limit the generalizability of the findings. Additionally, the intervention was short-term and did not include a control group, making it difficult to assess long-term retention or isolate instructional effects from general exposure. Future studies should employ larger samples, longitudinal designs, and controlled comparisons to further examine the durability and scope of morphological instruction effects.

Conclusion

This study suggests that morphological awareness significantly enhances vocabulary acquisition in EFL contexts. Learners who received explicit morphological training exhibited substantial improvements in recognizing and understanding morphologically complex words. The magnitude of these improvements, especially among beginner and intermediate learners, underscores the pedagogical importance of integrating morphology-focused instruction into language learning programs.

Ultimately, developing morphological awareness empowers learners to approach new vocabulary analytically rather than through rote memorization, fostering deeper lexical knowledge and more autonomous language learning. The results thus contribute to both theoretical understanding and practical application in the field of second language acquisition, highlighting morphology as a cornerstone of vocabulary growth and linguistic competence.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that Grammarly, an AI-assisted writing software, was used in proofreading and refining the language used in the manuscript. The usage was limited to correcting grammatical and spelling errors and rephrasing statements for accuracy and clarity. The author further declares that, apart from Grammarly, no other AI or AI-assisted technologies have been used to generate content in writing the manuscript. The ideas, design, procedures, findings, analyses, and discussion are originally written and derived from careful and systematic conduct of the research.

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Appendices

Appendix A

Item-Level Accuracy per Word

This appendix presents item-level accuracy percentages for pre- and post-test performance across all proficiency groups.

Table A1

Item-Level Percentage Accuracy

Word	A1 Pre-Test (%)	A1 Post-Test (%)	A1 Gain (%)	A2 Pre-Test (%)	A2 Post-Test (%)	A2 Gain (%)	B1 Pre-Test (%)	B1 Post-Test (%)	B1 Gain (%)
unhappy	16.7	100	83.3	60	100	40	92.9	100	7.1
unlucky	0	100	100	40	100	60	100	100	0
unusual	0	83.3	83.3	60	100	40	100	92.9	-7.1
unkind	0	83.3	83.3	60	100	40	100	100	0
untidy	0	83.3	83.3	40	100	60	92.9	100	7.1
impatient	0	16.7	16.7	0	40	40	28.6	71.4	42.9
impossible	0	16.7	16.7	0	40	40	21.4	71.4	50
careful	16.7	83.3	66.7	20	100	80	85.7	100	14.3
hopeful	0	83.3	83.3	0	100	100	78.6	100	21.4
useful	0	66.7	66.7	0	80	80	85.7	100	14.3
...	...	...	...	...	...	...	...	...	...

Note. A shortened version is presented here; a complete version of the dataset is available from the author upon request.

Appendix B

Lexical Error Classification by Proficiency Level

This appendix summarizes the most common and most accurately used lexical items across the three proficiency levels (A1, A2, B1). The analysis highlights specific morphological structures that posed the greatest challenges before instruction and those that were most successfully mastered after instruction.

Table B1

Summary of Lexical Errors and Accurate Items

Level	Most Frequent Lexical Errors	Most Accurately Used Lexical Items
A1	*powerless, disagree, disappear, misunderstand, happiness*	*unhappy, unlucky, unusual, unkind, untidy*
A2	*misunderstand, possibility, improvement, achievement, announcement*	*unhappy, unlucky, unusual, unkind, untidy*
B1	*possibility, invisible, misunderstand, disobey, inactive*	*unhappy, unlucky, unkind, untidy, careful*

Note. Items classified as "Most Frequent Lexical Errors" were those with less than 20% accuracy on the pre-test, while "Most Accurately Used Lexical Items" exceeded 80% accuracy on the post-test. These patterns suggest that learners initially struggled with less frequent or morphologically opaque forms such as *dis-* and *mis-* prefixed words, while words containing the more transparent prefix *un-* were mastered more effectively after instruction.