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Psycholinguistic Factors Shaping Written Uzbek Proficiency In Foreign Beginner-Level Learners

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Abstract: Developing writing proficiency in Uzbek as a foreign language (UFL) presents unique cognitive challenges due to the language's complex agglutinative morphology. This study investigates the psycholinguistic factors shaping written production among beginner-level (A1/A2) adult learners, specifically medical students in Tashkent. Utilizing a qualitative framework grounded in 2024–2025 classroom observations, the analysis explores the interaction between working memory, transcription automatization, and affective variables. The analysis indicates that the simultaneous processing of root lexical selection and multi-layered suffixation creates a significant cognitive bottleneck, often leading to orthographic avoidance and simplified syntactic structures. The study identifies writing anxiety as a primary mediator of fluency and highlights associative learning through visual suffix-mapping as a critical facilitator of morphological retrieval. The article concludes by proposing a differentiated instructional model that aligns cognitive load management with professional learner motivations to enhance early UFL writing proficiency.

Keywords: Uzbek as a foreign language (UFL); psycholinguistics; cognitive load theory; working memory; agglutinative morphology; transcription automatization; affective factors; associative learning; differentiated instruction.

Introduction: In recent years, teaching Uzbek as a foreign language (UFL) has grown in importance due to the rising number of international students in Uzbekistan. However, beginner-level (A1–A2) learners often struggle to write effectively. These difficulties stem from the cognitive load created by the language's structure. Because Uzbek is an agglutinative language, a single word often contains a root followed by several suffixes. For a beginner, writing a single sentence requires the brain to handle spelling, grammar, and word choice all at once. This creates a "bottleneck" in working memory, where the mind becomes too overwhelmed with grammar to focus on the meaning of the message. This article examines how these mental processes affect writing and suggests better ways to teach students by reducing this mental pressure.

METHOD

Research design. This study employs a qualitative, theory-informed classroom-based case study design to investigate the cognitive hurdles of beginner-level Uzbek writing. It utilizes thematic analysis of classroom observations and learner output to identify how psycholinguistic factors (such as working memory) interact with Uzbek's agglutinative morphology. This design allows for a deep exploration of the "writing process" rather than just the final product.

Participants and context. The project included three A1/A2 level cohorts (N=45) at medical universities in Tashkent during the 2024-2025 academic year. The participants were international medical students from India, Pakistan, and Malaysia, for whom Uzbek is a third or fourth language. This demographic is unique because their professional motivation communicating with local patients – directly influences their affective responses to language learning.

Data collection procedures. The researcher conducted 10 weeks of non-intrusive classroom observations,

totaling approximately 20 contact hours. To ensure data triangulation, three types of qualitative evidence were collected:

1. Field notes: Observations of "stalling" behaviors (e.g., long pauses before suffix attachment) and oral self-corrections.

2. Writing portfolios: Collection of weekly writing tasks, ranging from basic sentence construction to professional medical greetings.

3. Reflective dialogues: Short, informal discussions with learners following writing tasks to gauge their perceived "mental effort" and anxiety levels.

Data analysis. The data were analyzed using thematic analysis. The researcher followed a recursive process of familiarization, coding, and theme development. Initial codes (e.g., "suffix stacking errors" and "translation-induced delay") were grouped into wider psycholinguistic themes, such as Cognitive Overload and Morphological Interference. This allowed for a systematic mapping of theoretical constructs onto real-world classroom challenges.

Ethics Statement. This study involved non-intrusive classroom observations conducted for pedagogical analysis purposes only. Ethical approval was obtained from the relevant institutional authority. All participants were informed about the observational nature of the study, provided verbal consent, and were assured of anonymity and confidentiality. No personal identifiers were collected, and the observations did not interfere with instructional processes.

RESULTS

The qualitative analysis of classroom observations and learner portfolios reveals that developing written Uzbek at the A1/A2 level is a high-effort cognitive task defined by a significant morphological bottleneck. Data from the international medical students showed that writing speed and fluency decreased markedly when learners moved from root words to multi-suffix constructions. For example, while students could quickly write the root shifokor (doctor), the construction of shifokorlarimizdan (from our doctors) caused a distinct processing lag. This suggests that the "stacking" logic of Uzbek's agglutinative morphology consumes the majority of available working memory, leaving insufficient resources for sentence-level syntax. Consequently, many learners defaulted to "telegraphic" writing □ omitting vital case markers like the dative -ga or ablative -dan □ to reduce the mental burden of suffix retrieval.

Beyond cognitive mechanics, the results show a strong relationship between affective factors and professional context. Students from India, Pakistan, and Malaysia showed considerably higher task persistence when writing exercises were framed as medical patient intake notes rather than abstract grammar drills. For instance, learners were more likely to successfully navigate complex suffixation when writing a sentence like "Bemorga dori bering" (Give medicine to the patient) than during isolated drills. However, orthographic anxiety remained a barrier; high-anxiety learners produced texts that were consistently shorter, often sticking to "safe" memorized phrases like "Men talabaman" (I am a student) to avoid the risk of suffixation errors.

The introduction of associative learning tools, such as color-coded suffix charts, served as a vital cognitive shortcut. By assigning specific colors to case markers □ for example, marking the possessive -im in green and the locative -da in red □ students created a visual map that bypassed the heavy processing usually required by working memory. This intervention resulted in a noticeable reduction in morphological errors in final drafts. These results indicate that for UFL beginners, the "writing problem" is often a "processing problem" that can be solved by reducing the cognitive load through visual and professional scaffolding. The key psycholinguistic factors identified through the analysis are summarized in Table 1.

Table 1. Key psycholinguistic factors influencing beginner-level Uzbek writing

Factor	Description	Pedagogical Implication
Working memory	Supports transcription, syntax construction, and text generation	Reduce cognitive load through chunked suffix drills, visual suffix charts, and delayed error correction during drafting to allow learners to

		focus on meaning construction.
Motivation and self-efficacy	Influence persistence and task engagement	Design professionally relevant writing tasks (e.g., short medical case notes) with achievable goals to strengthen learner self-efficacy and sustained engagement.
Writing anxiety	Limits fluency and risk-taking	Implement low-stakes and collaborative drafting activities, including peer-supported writing, to minimize fear of error and encourage fluency.
Associative learning	Strengthens lexical and grammatical networks	Use semantic clustering, visual mnemonics, and color-coded suffix systems to support faster lexical retrieval and grammatical accuracy in writing.

DISCUSSION

The findings of this study provide a compelling psycholinguistic explanation for the "proficiency plateau" often observed in beginner-level Uzbek as a Foreign Language (UFL) writing. By synthesizing classroom observations with established theories, it becomes evident that the primary challenge for A1/A2 learners is the management of "suffix stacking". From the perspective of Cognitive Load Theory (CLT), the agglutinative nature of Uzbek imposes a high intrinsic load. Unlike analytic languages where grammatical relationships are often signaled by separate words, Uzbek requires learners to hold a root word in working memory while simultaneously navigating a hierarchical sequence of suffixes. This creates a morphological bottleneck where the mental effort required for morphological retrieval such as constructing the professionally relevant term shifokorlarimizdan effectively "steals" cognitive resources from syntactic planning and content generation (Li, 2023). This observation directly corroborates the developmental models of writing proposed by Kim and Schatschneider (2017), suggesting that writing fluency is contingent upon the automatization of these lower-level transcription and morphological processes.

Furthermore, the success of visual mapping and color-coding during the 10-week observation period supports the Involvement Load Hypothesis and accounts of associative learning. By utilizing color-coded suffix charts, learners moved from a high-effort "rule-based" retrieval process to a faster "pattern-based" visual association. These associative links act as cognitive scaffolds that bridge the gap between isolated grammatical knowledge and active written production. In the specific context of international medical students, the effectiveness of semantic clustering grouping vocabulary by professional relevance strengthened lexical networks and facilitated faster retrieval during time-pressured writing tasks. This indicates that associative networks reduce processing effort, eventually enabling learners to redirect their focus toward higher-level writing goals such as coherence and message formulation.

The study also highlights that for adult, professionally oriented learners, affective variables are deeply tied to their professional identity. The "Affective Filter" was notably lower when tasks were perceived as authentic, such as writing patient intake notes, yet the high rate of orthographic anxiety suggests that the fear of making "visible" morphological errors in an agglutinative system can trigger avoidance strategies. This supports the sociocognitive view that emotional regulation is inseparable from cognitive performance. Moreover, from a sociocultural standpoint, the findings resonate with Vygotsky's Zone of Proximal Development (ZPD). In the UFL context, the transition from mediated writing to independent production must be gradual. The observed psycholinguistic diversity among the 45 participants reinforces the need for a differentiated pedagogical model that balances analytical drills with communicative tasks. By aligning cognitive load management with professional motivation, UFL instruction can move toward a more

"brain-friendly" methodology that acknowledges the specific processing demands of the Uzbek language.

Limitations

While this study provides a detailed psycholinguistic mapping of beginner-level Uzbek writing, it is subject to several limitations. First, the research design is a qualitative case study utilizing classroom observations of 45 international medical students in Tashkent. While this allowed for a deep, contextualized understanding of the morphological bottleneck, the findings are not intended to be statistically generalizable to all Uzbek as a Foreign Language (UFL) learners. Different demographic groups, such as heritage learners or those in non-professional academic settings, may exhibit different psycholinguistic profiles. Additionally, because the study focused on the A1/A2 proficiency levels, the findings regarding working memory and cognitive load may not apply to intermediate or advanced learners who have already automatized basic suffixation. Future longitudinal research involving larger, multi-institutional cohorts and quantitative measures of working memory capacity would be valuable to validate the cognitive patterns identified in this research.

CONCLUSION

This research demonstrates that written proficiency in Uzbek as a foreign language at the beginner level is not merely a product of grammatical knowledge, but a complex interaction of cognitive architecture and affective regulation. The study identifies the morphological bottleneck caused by the heavy mental processing required for Uzbek's agglutinative structure as a primary constraint on early-stage writing. This cognitive load is further mediated by affective variables; while professional motivation among medical students acts as a catalyst for persistence, orthographic anxiety can severely limit written fluency and risk-taking.

The findings point out the significant potential of associative learning mechanisms, such as color-coded visual mapping, to serve as "cognitive shortcuts" that reduce the burden on working memory. By implementing psycholinguistically informed, differentiated instruction, educators can help learners move from high-effort rule retrieval to automatic morphological processing. Ultimately, a psycholinguistic approach offers a more "brain-friendly" framework for UFL pedagogy, ensuring that instructional demands align with the cognitive realities of the learner. As Uzbekistan continues to expand its role as an international education hub, such theoretically grounded and empirically supported teaching methods will be essential for the success of foreign language learners.

AI Usage Statement

Artificial intelligence tools were utilized in this study for the purposes of language refinement, structural clarification, and ensuring adherence to international academic formatting standards. All primary data collection, theoretical analysis, and the final synthesis of conclusions remain the sole responsibility of the author.

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