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Corpus-Based Activities for Russian-Speaking Seventh Graders: Impact on Kazakh L2 Writing Skills, Grammar and Boredom

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Abstract. While corpus-based instruction has demonstrated efficacy in English-as-a-second-language writing development, its application to non-Indo-European languages remains limited. This study investigates whether integrating corpus-driven activities into Kazakh language classrooms can bolster writing proficiency, grammatical accuracy, and learner engagement among Russian-dominant seventh graders. Using a quasi-experimental pre-test-post-test study with 112 Russian-dominant seventh graders in Kazakhstan, this study examined whether integrating corpus-driven activities into Kazakh language classrooms can improve writing proficiency, grammatical accuracy, and learner engagement. A quasi-experimental pre-test-post-test design was employed, comparing an experimental group receiving corpus-supplemented instruction with a control group receiving standard textbook-based instruction. Repeated-measures analyses of covariance revealed that the six-month-long intervention yielded significant improvements in lexical quality and grammatical word order, alongside moderate gains in verb conjugation. While writing accuracy and case use showed within-group progress, between-group differences were non-significant. Self-reported boredom declined in the treatment group, though the effect size was small and post-intervention comparisons were statistically indistinguishable. Findings suggest that corpus-integrated pedagogy enhances lexical sophistication and select grammatical competencies in L2 Kazakh

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writing, while its impact on overall accuracy and affective engagement remains nuanced. The study contributes to the scarce literature on data-driven learning in non-Anglophone contexts by demonstrating the partial transferability of corpus methods to agglutinative languages, with implications for L2 writing instruction in typologically diverse settings.

Keywords: boredom; grammar skills; production-oriented approach; second language; writing performance

1. Introduction

The diversification of linguistic inquiry is essential not only for theoretical advancement but also for addressing the pedagogical difficulties faced by learners of lesser-studied languages in diverse multilingual contexts. The study of language practices spans diverse educational and disciplinary contexts, reflecting their central role in learning (Ismailova et al., 2025; Zheldibayeva et al., 2025). Within this domain, the field of second language (L2) acquisition, particularly L2 writing research, has long been dominated by studies examining the English language. However, as scholars argue, the time has come to consider languages other than English, given that multilingualism represents the norm rather than the exception worldwide (Elosua & Lasagabaster, 2025).

Such diversification is essential not only for theoretical advancement but also for addressing the pedagogical challenges faced by learners of lesser-studied languages in diverse multilingual contexts. The rationale for focusing on lexical quality, writing accuracy, and grammatical skills stems from their centrality in L2 writing development, as these elements underpin the coordination of planning, translating, and revising processes (Zhao et al., 2026); corpus-based activities can provide authentic input to address typological challenges in agglutinative languages such as Kazakh (Li, 2022).

Writing constitutes one of the most complex linguistic skills to master in any language. It is a strategic process in which writers purposively and iteratively manage various types of knowledge and resources to generate the needed text (Xu & Zhu, 2024). This complexity is amplified in L2 writing, which demands the coordination of three interconnected subprocesses: planning (generating and organizing information while setting goals), translating (converting ideas into linguistic form), and revising (evaluating the written product against goals and making necessary modifications) (Garcés-Manzanera, 2024; Hwang et al., 2025; Zhang & Huang, 2025). These processes can be enhanced through corpus-based instruction, which exposes learners to authentic patterns, facilitating data-driven learning and bridging gaps in form-meaning mappings (Oktavianti et al., 2026).

Beyond serving as a demonstration of linguistic competence, writing contributes to L2 development itself by enhancing noticing, attention allocation, and recursive interaction among writing processes – what scholars term the "writing-to-learn" perspective (Tabari et al., 2025). The challenges inherent in writing extend even to native speakers. For instance, Arroyo-Romano (2024) found that many bilingual preservice teachers in Texas struggle to achieve certification because, despite

having grown up listening to and speaking Spanish at home, they encounter obstacles when using academic language in formal settings. Difficulties such as these are often magnified in contexts where learners must acquire literacy in a language they hear infrequently outside the classroom.

Such is the case in Kazakhstan, where a complex sociolinguistic landscape shapes language learning outcomes. Following the Soviet Union's breakup in 1991, Kazakh was designated the state language, and Russian the official language – a status that remains today. Kazakhstan inherited a substantial Russian-speaking population after the collapse, comprising ethnic Russians as well as ethnic Kazakhs who had grown up predominantly speaking Russian, with limited or no knowledge of Kazakh. As of 2025, ethnic Russians constitute 14.6% of Kazakhstan's population (stat.gov.kz/en/industries/social statistics/demography/publications/337150), with Russian being widely spoken across the country, particularly in northern and northeastern regions (Oraz et al., 2024).

Despite approximately 80% of the population reportedly being proficient in both Kazakh and Russian (Tlepbergen et al., 2025), approximately 30% of Kazakhstani school students receive instruction in Russian. Although Kazakh is taught as a compulsory subject, Russian-speaking students struggle to learn it as an L2, with many graduating without achieving fluency (Shibata, 2021). This context underscores the need for innovative pedagogies such as corpus-based activities to address motivation and affective factors, including boredom, which can hinder engagement in L2 learning (Lyu, 2025).

Rather than an exceptional case, this pattern of incomplete acquisition of a country's indigenous language reflects a common equilibrium seen across multilingual societies. As the framework proposed by Brock et al. (2025) demonstrates, heterogeneous levels of language proficiency naturally emerge when different groups weigh trade-offs between the costs of language learning and the benefits of communication. Research in cultural linguistics further documents that motivation to master indigenous languages is fading among younger populations despite older generations' relative proficiency and interest (Semenova et al., 2024).

This declining motivation carries implications beyond linguistic competence; a survey among almost 20,000 aboriginal individuals revealed that knowing an indigenous language was positively related to mental health through belongingness and collective self-esteem (White & Starzyk, 2025). The research gap lies in the under-exploration of corpus-based instruction for non-Indo-European languages such as Kazakh, particularly regarding its effects on writing and affective outcomes. Therefore, this study addresses this gap by testing the efficacy of such activities in bolstering targeted L2 skills and reducing boredom among Russian-speaking learners.

1.1 Challenges of Learning Kazakh for Russian Speakers

Learning Kazakh presents distinctive challenges for Russian-speaking students, rooted in fundamental typological differences between the two languages. Kazakh belongs to the Turkic language family and exhibits agglutinative morphology; wherein grammatical relationships are expressed through the systematic addition of suffixes to word stems. A single Kazakh verb can carry multiple suffixes indicating tense, aspect, mood, person, and number, creating forms that would require entire phrases in Russian. For example, the Kazakh word baraghym ("my desire to go") comprises the root bar- ("go"), the desiderative suffix -ghy, and the first-person possessive suffix -m. This agglutinative structure contrasts sharply with Russian's fusional morphology, whereby inflectional endings simultaneously encode multiple grammatical categories. These morphological differences directly relate to the study's focus on verb conjugation and case use, as corpus-based activities can provide exemplars to scaffold suffix acquisition (Zhang, 2022).

Furthermore, Kazakh employs a subject-object-verb word order, differing from Russian's relatively flexible but predominantly subject-verb-object pattern. Thus, learners must reorganize their conceptualization of sentence structure, placing verbs consistently at the ends of clauses. Additionally, Kazakh lacks the verb "to be" in present-tense constructions, requiring learners to form nominal sentences without a copula – a feature absent in Russian, which employs the verb byt' ("to be") even when it may be omitted in informal speech.

The case system presents another formidable challenge. While Russian utilizes six grammatical cases (nominative, genitive, dative, accusative, instrumental, and prepositional), Kazakh employs seven: nominative, genitive, dative-directional, accusative, locative, ablative, and instrumental. In brief, Kazakh's ablative case marks movement away from a location (e.g. -dan/-den), while the dative-directional case indicates both recipients and movement toward (e.g. -ga/-ge), requiring learners to adapt spatial and relational encodings from Russian preposition-based systems. Although some conceptual overlap exists, the functional distributions differ considerably. For instance, Kazakh's ablative case marks movement away from a location, a function typically expressed in Russian through prepositions combined with the genitive or prepositional case. The dative-directional case in Kazakh can indicate both the recipient of an action and movement toward a location, requiring learners to reconceptualize the way in which spatial and relational meanings are encoded.

Moreover, Kazakh exhibits vowel harmony, a phonological constraint whereby vowels within a word must harmonize according to frontness and rounding. Suffixes change their vowel quality to match the stem, a phenomenon entirely foreign to Russian phonology. For example, the plural suffix appears as -lar after back vowels (bala-lar, "children") but as -ler after front vowels (üy-ler, "houses"). This feature demands heightened phonological awareness and places additional cognitive load on learners unfamiliar with such systematic vowel alternations. These phonological and syntactic challenges align with the intervention's emphasis on guided corpus exploration to support grammatical outcomes such

as word order and case use, as authentic data can illustrate harmony in context (Gilquin, 2024).

These structural differences compound the hurdles Russian-speaking students experience when acquiring written proficiency in Kazakh. Traditional textbook-based instruction, which often emphasizes explicit rule presentation followed by mechanical drills, may prove insufficient for helping learners to internalize these complex patterns and deploy them fluently in authentic communication. The corpus-based intervention addresses these issues by linking linguistic challenges to measured outcomes, such as improved accuracy through pattern induction (Sun & Mizumoto, 2026).

1.2 Corpus-based Instruction: Potential and Research Gaps

One pedagogical approach that has gained considerable traction in recent decades involves leveraging large-scale electronic texts to support language teaching. Corpus-based instruction is an educational approach that utilizes extensive digital text collections, known as corpora, to facilitate language attainment. By exposing students to genuine language examples, this method enables them to inductively uncover linguistic patterns and norms by studying real-world contexts (Li et al., 2025b). The use of academic corpora in L2 writing pedagogy has grown increasingly popular (Qiu, 2024; Tang, 2024), with accumulating evidence of its effectiveness. A recent meta-synthesis of 30 studies (Ngo & Chen, 2025) yielded a large overall effect size (Hedge's g = 0.95) for the impact of corpus use on English as a foreign/second language (EFL/ESL) student writing performance. This potential extends to grammatical skills, as corpus exposure aids in noticing form-function relationships in agglutinative structures (Aybek, 2025; Benati, 2023).

Despite these promising findings, extant research on corpus-based instruction remains concentrated in Anglophone contexts, with non-English cases remaining relatively underrepresented in the literature. This gap is particularly pronounced for typologically distant languages such as Kazakh, where the structural differences from Indo-European languages might necessitate distinct pedagogical adaptations. The scarcity of research on corpus-based instruction for Turkic languages leaves unanswered questions about whether findings from English contexts transfer to agglutinative languages with different morphosyntactic systems. Given that the effectiveness of pedagogical interventions can vary across linguistic contexts, the empirical investigation of corpus-based instruction for Kazakh is warranted.

Furthermore, the affective dimensions of corpus-based instruction remain underexplored. Research on boredom in second language acquisition has proliferated, with mixed findings regarding its relationship to L2 achievement. A meta-analysis of 34 papers revealed a negative correlation with a medium effect size (r = -0.30) between boredom and achievement (Li et al., 2025a). Given that boredom in language learning often stems from monotonous, repetitive tasks that lack perceived value or appropriate challenge (Alrajhi, 2024), corpus-based activities – with their emphasis on discovery and problem-solving – may offer an antidote. Nonetheless, empirical evidence on whether corpus-based instruction

reduces L2 boredom, particularly in non-English contexts, remains sparse. The current study therefore seeks to address these issues by leveraging corpora to scaffold writing and grammar while examining learner engagement.

2. Theoretical Framework and Study Rationale

The present study addresses these gaps by examining the effectiveness of corpus-based activities integrated into Kazakh language instruction for seventh-grade Russian-speaking students. The intervention operationalizes the production-oriented approach, a pedagogical framework that posits language production as both a motivator for language learning and a mechanism for development (Huang et al., 2025). The production-oriented approach emphasizes output as a catalyst for effective teaching and the assimilation of new information (Wang et al., 2025), asserting that output-driven tasks can enhance language input through a circular teaching process. This model encompasses a structured sequence, moving from motivating students to enabling active engagement, and finally to assessing their progress, thereby creating a dynamic cycle that supports comprehensive language acquisition (He & Li, 2025; Li et al., 2022). Figure 1 illustrates the framework.

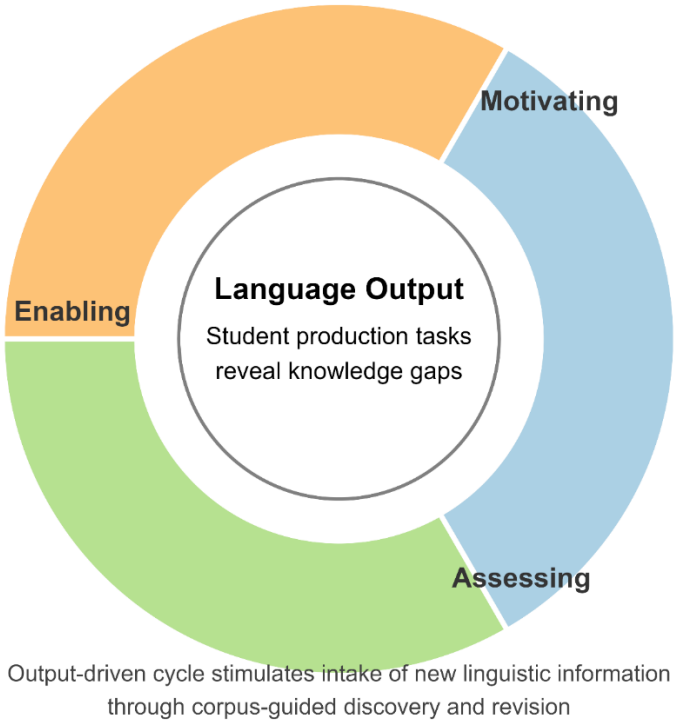

Figure 1: Theoretical framework of the production-oriented approach with corpus integration

Complementing this pedagogical framework, usage-based construction grammar provides a theoretical lens for understanding how corpus exposure facilitates L2 development. This perspective views language as a structured, hierarchical inventory of constructions – form-meaning pairings interconnected through semantic and syntactic links. Consequently, the learning of L2 constructions is viewed as a central component of second language acquisition (Liu & Lu, 2024). From this perspective, exposure to multiple authentic instances of Kazakh

constructions in corpus data should help learners to detect patterns, extract regularities, and build their own constructional repertoire. This aligns the linguistic challenges of Kazakh (e.g., agglutination) with the intervention by using corpora to reinforce constructions in writing tasks (Ma & Han, 2025).

By integrating corpus-based activities into instruction, this intervention sought to create conditions under which learners first attempt production, thereby noticing their linguistic deficits. Subsequent teacher-led corpus exploration was intended to provide authentic, contextualized input precisely when needed. Exposure to numerous real-world sentence examples should help students to acquire collocations and appropriate lexical phrasing, improving lexical quality. The iterative cycle of attempting production, observing correct patterns, and receiving feedback is expected to bolster writing (Qin et al., 2025).

For grammar learning, guided inductive discovery through corpus consultation was hypothesized to improve grammar skills through guided, inductive discovery. Instead of memorizing abstract rules, students observe grammatical patterns in authentic use. By analyzing multiple corpus sentences under teacher guidance, students can identify Kazakh's consistent subject-object-verb word order, identify recurring agglutinative suffixes for different persons in verb conjugations, and recognize various case endings on nouns, linking form directly to function in meaningful contexts. This input-enabled active learning is likely to foster deeper cognitive processing and better understanding of grammatical structures (Sun, 2024) compared to conventional rule presentation.

Regarding affective outcomes, corpus-based activities were hypothesized to reduce L2 boredom by replacing standard drills with a more dynamic, problem-solving approach. The motivating stage (L2 corpus input) may create an immediate communicative goal, with the enabling stage (output task) transforming language learning into a more stimulating linguistic exploration (Wang, 2023; Zhang, 2020). This active, discovery-oriented process, as framed by the production-oriented approach, may increase interest, thereby lowering learners' perception of boredom in the Kazakh language classroom. The interactive and exploratory nature of corpus work may shift the classroom dynamic from passive reception to active inquiry, potentially altering students' subjective experience of the lesson and decreasing their tendency to disengage or mentally withdraw. Thus, the intervention sought not only to improve linguistic outcomes but also to reshape the affective landscape of the Kazakh language classroom.

This study aims to examine the effectiveness of integrating corpus-based activities into Kazakh language instruction for seventh graders, in comparison to standard classroom instruction. With this objective in mind, the following research questions (RQs) were posed:
RQ1: How do corpus-based activities influence students' L2 Kazakh writing performance in terms of lexical quality (RQ1A) and writing accuracy (RQ1B)?

RQ2: How do corpus-based activities influence students' L2 Kazakh grammar skills in terms of word order (RQ2A), verb conjugation (RQ2B), and case use (RQ2C)?
RQ3: How do corpus-based activities influence students' self-reported boredom in L2 Kazakh learning?

3. Methodology

The use of intact classes was justified by the practical constraints of school scheduling and ethical considerations in order to avoid disrupting ongoing instruction, with baseline equivalence tested via pre-test comparisons that detected no significant group differences ($p > .05$ across variables; see Section 4 for details). A quasi-experimental pre-test/post-test control group design was employed to examine the effectiveness of a corpus-based pedagogical intervention. The independent variable was the type of instruction, which consisted of two levels: an experimental condition featuring Kazakh language lessons supplemented with corpus-based activities; and a control condition that continued textbook-only instruction, incorporating reading, writing, and speaking practice from the prescribed textbook without corpus integration. The procedures were reviewed and endorsed by the local research ethics board.

3.1 Sample

The study's participants were recruited through convenience sampling. The sample comprised 112 seventh-grade students whose first language was Russian and who were enrolled in four Kazakh classes delivered by the same teacher—who had no role on the research team—within a single public school. Although the participants had commenced formal Kazakh instruction in the first grade, as required by the local educational policy, their practical proficiency remained at a beginner level, indexed as A1 on the Qaztest state assessment system; this was consistent with limited out-of-school exposure to Kazakh. The sample size was determined based on the availability of the student cohort and was deemed sufficient to detect medium effects common in instructional interventions.

No attrition occurred during the intervention. Participant recruitment occurred in September 2024, with participation being contingent upon informed consent from both the students and their parents or legal guardians. The intervention activities were delivered and overseen by the classroom teacher during scheduled class periods, necessitating recruitment at the class level. The four classes were randomly allocated to either the experimental group, which included two classes totaling 55 students ($n = 26$ and $n = 29$), or the control group, which consisted of the other two classes totaling 57 students ($n = 30$ and $n = 27$). This random allocation of classes was intended to mitigate selection bias inherent in convenience sampling.

3.2 Literature Review Aspect

The intervention was grounded in the production-oriented approach, which frames language production as a driver of learning by making students aware of gaps in their knowledge through output tasks, thereby stimulating the intake of new information. This pedagogical model was implemented through a three-

stage cycle of motivating, enabling, and assessing. Figure 2 summarizes these stages.

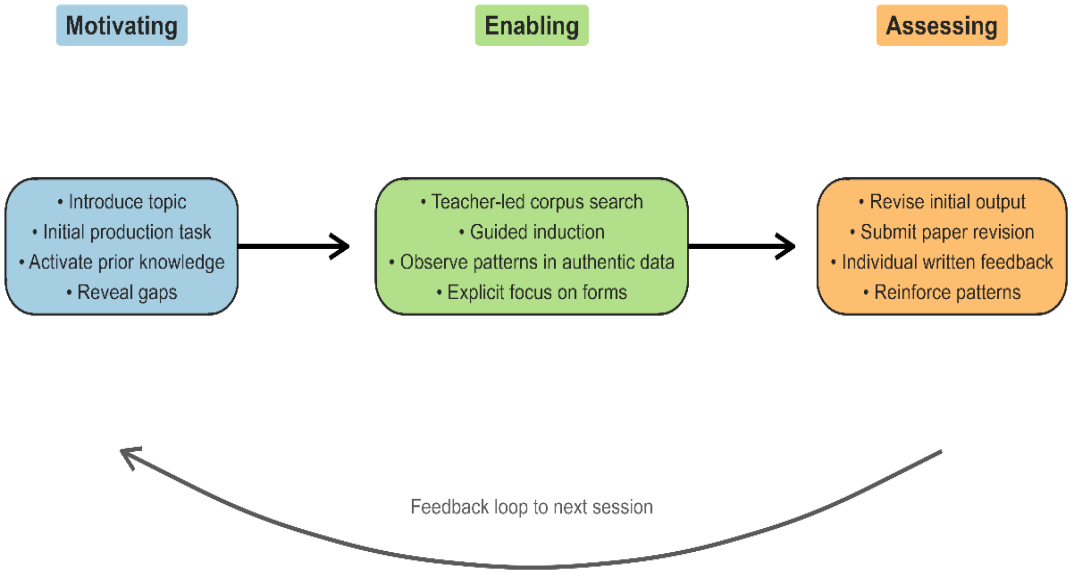

Figure 2: Flowchart of the three-stage intervention procedure

The first author monitored the fidelity of the implementation through regular classroom observations using a structured checklist that assessed adherence to the stages (e.g. completion of motivating task, corpus search demonstration, and revision feedback). Prior to the intervention, in September 2024, the participating teacher received a training package prepared by the research team.

This package included Russian-language translations of materials from the corpus-aided platform for language teachers (corpus.eduhk.hk/cap), featuring instructional videos on designing corpus-based activities. The training focused on the principles of data-driven learning, whereby learners are guided to discover linguistic patterns from authentic language data. The teacher was trained to use the online corpus of the Kazakh language (194.146.43.249/findru) as a pedagogical tool, specifically with regard to how to conduct single-word searches and interpret the resulting sentence fragments to highlight lexical and grammatical features relevant to the A1-level curriculum.

From mid-October 2024 to late April 2025, the experimental group participated in 13 twice-monthly corpus-based lessons, each lasting approximately 45 minutes. These activities were conducted during regular Kazakh language class time in the school classroom. The teacher led all activities using a projector-connected computer to demonstrate corpus searches and display results, while students completed tasks in paper-and-pencil format. Classroom talk and instructions were in Russian, whereas student products and linguistic targets were in Kazakh. The activities are summarized in Table 1.

Table 1: Kazakh language topics for corpus-based activities

Lesson	Month	Topic
1	October 2024	Greetings and Introductions (Таныcу)
2	November 2024	My Family and Friends (Менің отбасым және достарым)
3	November 2024	My School Day (Менің мектептегі күнім)
4	December 2024	My Hobbies and Free Time (Менің сүйікті ісім және бос уақытым)
5	December 2024	Food and Drink (Тамақ және сусындар)
6	January 2025	My City/Village (Менің қалам/ауылым)
7	January 2025	Weather and Seasons (Ауа райы және жыл мезгілдері)
8	February 2025	Clothing and Shopping (Киім және сауда)
9	February 2025	Daily Routines (Күн тәртібі)
10	March 2025	Sports and Health (Спорт және денсаулық)
11	March 2025	Holidays and Celebrations (Мерекелер мен мейрамдар)
12	April 2025	Professions (Мамандықтар)
13	April 2025	Future Plans (Болашаққа жоспарлар)

Each session followed the production-oriented approach's three-stage procedure. In the motivating stage, the teacher introduced a topic (e.g. daily routines) and presented a brief, targeted production task, such as writing a few sentences or completing a short translation from Russian to Kazakh. Students attempted this task individually, which served to activate their existing knowledge and reveal specific linguistic challenges.

In the enabling stage, the teacher addressed the difficulties observed or reported by students. This stage formed the core of the corpus-based intervention. The teacher selected a key Kazakh word related to the task (e.g. a noun requiring a specific case) and entered it into the online corpus search interface, projecting the resulting list of authentic sentences to the students. This process is a form of guided induction, whereby the teacher scaffolds the students' discovery of language patterns.

For instance, to teach verb conjugations, the teacher might search for the verb "оқу" (to read/study) and guide students to observe how the suffix changes in different sentences (e.g., "Мен кітап оқимын" – I read a book; "Сен кітап оқисың" – You read a book). To demonstrate case usage, the teacher could search for a noun such as "мектеп" (school) and highlight examples showing the locative case ("мектепте" – at school) or the dative-directional case ("мектепке" – to school). This teacher-led exploration of authentic examples provided explicit instruction on vocabulary in context (lexical quality), sentence structure (word order), and morphology (verb conjugation and case use), directly targeting the study's dependent variables.

In the assessing stage, which provided the feedback loop, students returned to their initial production task, revising their original sentences using the knowledge gained from the corpus exploration. The teacher collected these paper-based revisions at the end of the session. Before the next corpus-based lesson, the teacher provided individualized written feedback on these revisions, correcting errors and reinforcing the patterns discussed. The first author unobtrusively monitored completion of the experimental procedures through classroom observations. An illustrative example clarifies the procedure: for the topic "Describing one's city," the teacher asked students to write "There is a big museum in my city" in Kazakh (motivating stage); after identifying errors in locative case usage, the teacher searched "қалада" (in the city) in the corpus and highlighted the "-да" suffix and word order patterns (enabling stage); students then revised their sentences, which were collected for written feedback (assessing stage).

3.3 Instruments

Three distinct instruments assessed the key variables before and after the intervention: an L2 writing task, a grammar test, and a questionnaire measuring L2 boredom. The validity and clarity of these instruments and the associated procedures were confirmed through a pilot study with eight seventh-graders at a different site prior to the main data collection.

3.3.1 *Writing*

Writing performance was elicited using a simplified version of the Fire-Chief task, adapted from Manchón et al. (2023). This is a picture-based problem-solving exercise in which students viewed an image of a burning building requiring rescues and composed responses addressing strategies for maximizing rescues, rescue sequencing, and rationales for those actions. Written language complexity is considerably influenced by topic choice at every proficiency level, as demonstrated in a recent study employing automated natural-language processing (Khushik, 2025).

In light of this finding, the Fire-Chief task was preferred over traditional textual prompts because it combines an information-rich visual stimulus with an outcome that hinges on sequencing and argumentation rather than on recounting personal experience. A picture-based, problem-solving task minimizes the dependencies on prompt comprehension and topic knowledge that can confound writing quality, thereby allowing more variance to be attributed to the target constructs. Furthermore, the Fire-Chief scenario is culturally neutral and does not presuppose specific cultural knowledge, making it appropriate for learners from diverse backgrounds.

Instructions appeared in Russian, with 50 minutes being allotted for completion of the task on blank paper without word limits. Evaluation focused on lexical quality using a rubric from Fang et al. (2021), which scored the writing output on a scale ranging from 0 to 9, with collocation error counting omitted. Instead, overall writing accuracy was quantified using error ratios per 100 words (n errors/n words × 100), encompassing grammatical, lexical, spelling, and punctuation issues; a lower estimate denoted higher writing accuracy. Two

Kazakh native-speaker raters with teaching experience, blind to group membership and test phase, independently scored the submissions, with discrepancies resolved through discussion via Telegram.

3.3.2 *Grammar*

Grammar skills were assessed using a translation-based task (Spearman-Brown coefficient of .81 in this sample) modeled after Busse et al. (2021). Given that the Kazakh language lacks the auxiliary verb "to be," the task was adapted to examine case use. Students were given 25 minutes to translate six short question-answer pairs from Russian into Kazakh. Performance was scored across three dimensions: correct word order; correct verb conjugation with appropriate agglutinative suffixes; and correct use of the seven grammatical cases (nominative, ablative, locative, dative-directional, genitive, accusative, and instrumental). Each pair yielded up to three points, offering a maximum score of 18.

3.3.3 *Boredom*

Boredom perceptions in Kazakh learning were gauged using the language-class boredom dimension (seven items) of the L2 learning boredom scale (Zhao & Wang, 2024), which was adapted for the context of this study. For example, the original item "I always try to kill the time rather than focusing on the online Chinese class" was converted to "I always try to kill the time rather than focusing on the Kazakh class." Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher cumulative score signified a stronger perception of boredom. Internal consistency in this sample was acceptable, as indicated by a Spearman–Brown coefficient of .73.

3.4 Data Collection

All measurements took place at the sampled school. Data were gathered at two time points: a pre-test in early October 2024, prior to the intervention; and a post-test in May 2025, after its completion. Pre- and post-tests were administered under identical conditions to ensure comparability. At each wave, the measurement battery was distributed across two non-consecutive school days to minimize fatigue. Day 1 was devoted to the 50-minute writing assignment. Day 2 included the grammar test and the boredom questionnaire, administered consecutively, taking approximately 40 minutes, for a combined total of approximately 90 minutes across the two days at both baseline and post-intervention.

Administration followed standardized paper-and-pencil procedures. Two trained research assistants, independent of instruction, delivered scripted oral instructions in Russian, distributed pre-coded test packets, monitored timing with visible countdowns, enforced a silent testing environment, and addressed procedural questions only. The classroom teacher remained present for classroom management without offering linguistic assistance. Upon completion, the assistants collected all materials, verified completeness against class rosters, sealed packets by class, and transferred them for scoring. Prior to any scoring or data entry, all collected data were de-identified to remove personal identifiers and assigned anonymous codes consistent across waves.

3.5 Statistics

To evaluate how the outcomes had changed from baseline to post-intervention, mean scores and standard deviation estimates were calculated, followed by six separate repeated-measures analyses of covariance (RM ANCOVA) conducted for the response variables, using the pre-test score as the covariate to account for initial differences. A series of diagnostic tests was conducted to verify that the assumptions for covariance analysis were met. These checks included a quadratic-term test for linearity, an examination of the homogeneity of regression slopes, the Shapiro-Wilk test for the normality of residuals, and Levene's test for homoscedasticity.

Given violations of these assumptions for most of the variables, a non-parametric ANCOVA procedure alongside Mann-Whitney and Wilcoxon tests for pairwise comparisons were run via R statistical software (version 4.5.2). The practical significance of the findings was determined by computing partial eta squared (η_p^2) as the measure of effect size, with estimates < .06, .06–.13 and ≥ .14 indicating small, medium, and large effect sizes, respectively. An effect was considered statistically significant when the p-value was less than .05. Adjustments for multiple comparisons were not applied, as the analyses were planned a priori for the six specific outcomes tied to the RQs, minimizing family-wise error inflation in this focused design.

4. Results

4.1 RQ1: Writing Performance

For lexical quality in L2 Kazakh writing (RQ1A), the ANCOVA revealed a statistically reliable effect of the intervention ($p = .001$, $\eta_p^2 = .133$), indicating a medium-to-large effect size (Table 2). The post-intervention Mann-Whitney test corroborated a significant inter-group difference ($U = 815$, $p = .001$), favoring the subsample that engaged with the corpus in the classroom. This result suggests that corpus-driven activities likely led to greater improvements in lexical quality compared to ordinary instruction.

Table 2: Pre- and post-test scores for lexical quality and writing accuracy (RQ1)

Variable	Group	Pre-test	Post-test	Sig[a]	ANCOVA		
		Mean ± SD	Mean ± SD		*T*	p	η_p^2
Lexical quality	Control	2.40 ± 0.73	2.67 ± 0.79	.001	0.23	.001	.133
	Intervention	2.27 ± 0.76	3.49 ± 0.88	.001			
Sig[b]		0.265	.001				
Writing accuracy	Control	37.0 ± 12.28	34.79 ± 12.16	.001	13.96	.012	.091
	Intervention	40.90 ± 11.54	31.42 ± 8.63	.001			
Sig[b]		.089	.216				

Note: a, paired comparison (Wilcoxon test); b, unpaired comparison (Mann-Whitney test); η_p^2, partial eta squared.

Regarding writing accuracy (RQ1B), both groups exhibited statistically significant within-group improvements from baseline to post-measurement, and the ANCOVA detected a significant medium effect ($p = .012$, $\eta_p^2 = .091$). However, the groups did not differ substantially post-treatment ($U = 1{,}780.5$; $p = .216$). This evidence suggests that the intervention did not produce a statistically discernible advantage over the comparison condition in writing accuracy, with the between-group effect being non-significant. As shown in Table 2, the data for RQ1 highlight improvements in lexical quality but null between-group differences for accuracy.

4.2 RQ2: Grammar Skills

In the domain of grammar skills, the ANCOVA outcome was significant for the word order parameter (RQ2A; $p = .009$, $\eta_p^2 = .118$), with a medium effect magnitude (Table 3). The intervention group outperformed the comparison group in word order at post-test ($U = 1{,}029.5$; $p = .001$), indicating a clear benefit from the intervention.

Table 3: Pre- and post-test scores for grammar skills (RQ2)

Variable	Group	Pre-test	Post-test	Sig[a]	ANCOVA		
		Mean ± SD	Mean ± SD		*T*	p	η_p^2
Word order	Control	2.95 ± 1.04	3.37 ± 1.11	.001	0.22	.009	.118
	Intervention	2.71 ± 0.92	4.07 ± 0.98	.001			
Sig[b]		0.156	0.001				
Verb conjugation	Control	2.33 ± 0.93	2.74 ± 0.79	.001	0.06	.001	.105
	Intervention	2.16 ± 0.83	3.11 ± 0.85	.001			
Sig[b]		0.342	0.042				
Case use	Control	2.49 ± 0.89	2.93 ± 1.02	.001	0.08	.005	.076
	Intervention	2.31 ± 0.81	3.35 ± 0.93	.001			
Sig[b]		.235	.067				

Note: a, paired comparison (Wilcoxon test); b, unpaired comparison (Mann-Whitney test); η_p^2, partial eta squared.

With regard to verb conjugation (RQ2B), there was a significant main effect of a medium size ($p = .001$, $\eta_p^2 = .105$). The post-test inter-group difference was also statistically significant ($U = 1242$, $p = .042$), with the corpus-supported group achieving higher scores, thus signifying a benefit of the intervention for verb conjugation skills among seventh graders.

In terms of case use (RQ2C), the ANCOVA yielded a notable effect ($p = .005$, $\eta_p^2 = .076$). Nevertheless, no statistically significant post-intervention difference between groups ($U = -383.5$, $p = .067$) was observed. This finding implies that the corpus-based procedures did not yield a clear advantage in case usage over the control condition, with the between-group effect being non-significant.

4.3 RQ3: Self-reported Boredom

For perceived boredom, the trial group reported a marked reduction in boredom from time one to time two, while the comparison group did not (Table 4). The

ANCOVA result was significant, but the effect magnitude was small (p = .005, ηp2 = .037). Coupled with the statistically negligible post-test difference (U = 1,824.5; p = .134), this result suggests that the corpus-informed instruction did not substantially decrease self-diagnosed boredom compared with the comparison group, with the between-group effect being non-significant and small in magnitude. As presented in Table 4, the RQ3 data indicate a small within-group reduction in the experimental group but no significant between-group difference.

Table 4: Pre- and post-test scores for self-reported boredom (RQ3)

Variable	Group	Pre-test	Post-test	Sig[a]	ANCOVA		
		Mean ± SD	Mean ± SD		*T*	p	η_p^2
Perceived boredom	Control	2.78 ± 0.78	2.93 ± 0.55	.085	0.03	.005	.037
	Intervention	3.05 ± 0.89	2.74 ± 0.71	.006			
Sig[b]		.071	.134				

Note: a, paired comparison (Wilcoxon test); b, unpaired comparison (Mann-Whitney test); η_p^2, partial eta squared.

5. Discussion

This study sought to evaluate the impact of incorporating corpus-driven tasks into teaching Kazakh as a second language for middle school learners whose primary language is Russian, in comparison to conventional curriculum delivery, focusing on written expression, grammatical mastery, and disengagement during lessons. This section presents an interpretation of the findings in relation to each research question.

RQ1 (Writing): Why did corpus-based instruction benefit lexical quality more than overall accuracy?

The most consistent writing-related advantage of corpus-based work in this study concerned learners' ability to produce more appropriate and topic-relevant lexical choices in connected text. A plausible explanation is that guided corpus consultation directly supported "selection problems" (i.e. deciding what word or phrase to use and how it typically appears in context), whereas the accuracy metric combined a broader set of "form problems" (grammar, spelling, punctuation, and lexical errors) that are less likely to improve within a limited number of short interventions.

In the present design, the enabling stage made authentic phraseology visible at the exact moment learners confronted a communicative need, which fits a usage-based construction-grammar interpretation: learners can abstract recurring form–meaning pairings when they see multiple attestations clustered around the same communicative function. This mechanism also matches prior corpus-assisted writing research, in which learners' lexical sophistication and contextual appropriateness improved after targeted corpus consultation (Fang et al., 2021).

By contrast, the absence of a clear between-group advantage for accuracy does not imply that the intervention "failed" to support accuracy. First, both conditions involved sustained writing and teacher feedback across the school year, which can generate similar improvements through practice and increased familiarity with task demands. Second, the operationalization of writing accuracy as an error ratio per 100 words likely diluted any specific benefits of corpus work because the corpus activities primarily targeted lexical choice and morphosyntax, not orthographic conventions and punctuation, which were nonetheless included in the accuracy count.

Third, at A1 proficiency, learners' attention is often consumed by message generation and basic morphology; consequently, they may adopt a "good-enough" approach to surface correctness even when vocabulary selection improves. In short, the lexical-quality advantage reflects the intervention's strongest instructional affordance (high-density, contextualized exemplars), whereas the accuracy measure captured a wider range of error types, some of which were not the main target of corpus-guided discovery.

RQ2 (Grammar): Why were gains clearer for word order and verb conjugation than for case use?

The observed grammatical pattern – clearer improvement for word order and verb conjugation than for case use—also aligns with the instructional mechanics of the intervention and the typological demands of learning Kazakh for Russian-speaking beginners. Word order regularities in Kazakh (verb-final patterns) are visually noticeable in concordance-like displays because the verb repeatedly appears in a stable clause position across multiple examples. Similarly, person/number marking on verbs can be seen as a recurring suffixal contrast when the same verb stem appears in different sentences.

These are precisely the kinds of distributional regularities that guided inductive work is designed to make learnable, particularly when learners are prompted to compare examples and then immediately revise their own output within the production-oriented cycle. This interpretation is also consistent with earlier corpus-informed grammar instruction showing that repeated exposure to exemplars can support morphosyntactic editing and rule formation in novice writers (Lin, 2021; Yang & Ren, 2025). The production-oriented framework's emphasis on output-triggered input, as validated by a meta-analysis (Wang & Lyu, 2025) showing a substantial overall boost ($g = 0.70$) in language competencies, likely underpinned these syntactic and inflectional advances by cycling production with authentic exemplars.

However, case use likely requires more than distributional noticing of suffix patterns because it involves reliable mapping among semantic roles, discourse-pragmatic conditions, and competing form choices, many of which are not recoverable from short, decontextualized concordance lines. In other words, case is not only a "form" but also a choice conditioned by meaning and context, and beginners may need more explicit semantic scaffolding and more varied communicative practice before corpus exposure translates into consistently

accurate production. Additionally, Kazakh's case system introduces both an expanded inventory and partially non-overlapping functions relative to Russian, which can intensify negative transfer: learners may recognize a suffix pattern in the corpus yet still mis-assign it when expressing directionality, location, source, or affectedness under time pressure.

Finally, the intervention's time-on-feature may also matter in classroom reality, teachers often select a small set of "high-need" patterns per lesson; if verb paradigms and basic clause structure were emphasized more than nuanced case alternations, then differential growth across subskills would be expected. Taken together, the grammar findings suggest that corpus-supported discovery is particularly well matched to highly frequent, visually detectable morphosyntactic regularities, while semantically conditioned systems such as case marking may require longer exposure, richer contextualization, and complementary meaning-focused practice to yield a clear advantage.

RQ3 (Boredom): What does a small effect mean, and what should not be concluded?

The boredom results warrant a cautious interpretation. Although boredom decreased within the intervention group over time, the small effect size and the absence of a clear post-test between-group difference indicate that corpus-based lessons should not be presented as a robust solution to motivational or affective challenges in this context. A conservative reading is that corpus work can make some lessons feel more purposeful and problem-focused, but this effect may be fragile.

Two factors may have constrained affective impact: the intervention dosage (13 lessons across several months) may not be sufficient to reshape stable classroom perceptions, and the novelty of corpus exploration may fade without continued task variety and autonomy-supportive structures. Therefore, the present pattern aligns with prior findings in which corpus tools can support engagement for some learners while leaving broader motivational dispositions largely unchanged. These findings align with prior research showing boredom reductions under concordance-based instruction while still cautioning that affective gains depend strongly on task design and classroom ecology (Mahmoudi-Gahrouei et al., 2025). Thus, the boredom findings suggest a possible benefit rather than providing definitive evidence.

5.1 Limitations

Several methodological constraints qualify the interpretation of these findings. The quasi-experimental design, while pragmatic for intact classes, introduced potential confounds from unmeasured classroom dynamics, such as varying peer interactions during corpus projections that might unevenly influence collaborative discovery. Therefore, the observed advantages for lexical quality, word order, and verb conjugation should be interpreted as intervention-associated rather than strictly intervention-caused.

Reliance on a single instructor for both conditions, despite fidelity checks, reduced between-teacher variability but also increased the possibility of teacher expectancy or differential enthusiasm when implementing novel methods. If the teacher was more animated or supportive during corpus lessons, part of the observed benefit could reflect changes in interactional quality rather than corpus exposure alone.

The intervention's bilingual scaffolding (Russian directives paired with Kazakh targets) might have diluted immersion, possibly reducing the depth of phonological and syntactic internalization compared to monolingual setups. Finally, the study did not include delayed post-testing; therefore, it is impossible to determine whether the observed gains reflect durable learning or short-term performance improvements linked to recent practice.

5.2 Suggestions for Practice and Further Research

Educators teaching typologically distant L2s should embed guided corpus queries into output cycles, prioritizing high-frequency searches for morphological hotspots to accelerate pattern recognition without overwhelming beginners. Schools in multilingual regions could equip teachers with brief, localized training on accessible corpora, ensuring seamless integration during routine lessons to sustain motivation and curb disinterest. To address the uneven grammar uplifts, practitioners might extend sessions with targeted follow-ups on persistent challenges, such as case versatility, blending corpus visuals with hands-on manipulations for reinforced retention.

Practically, the most defensible implication is not that corpora should replace the textbook, but that short, recurring corpus episodes can be embedded into existing units at the moment learners attempt production and demonstrably "need" a form or phrase. In the context of this study, projecting corpus examples while maintaining paper-and-pencil output and Russian-language task management appears feasible in ordinary classrooms and may reduce barriers to adoption in under-resourced settings. However, the weaker pattern for case use and accuracy indicates that corpus work should be paired with additional supports – particularly meaning-focused explanation and feedback that explicitly links case endings to communicative intent – rather than expecting concordance exposure alone to resolve semantically complex morphology.

Future research efforts should explore the longitudinal retention of these gains, tracking how initial boosts in lexical and syntactic skills evolve over semesters across proficiency levels. Interventions should test whether this pattern replicates across schools, teachers, and proficiency bands, ideally using randomized or stepped-wedge designs that better isolate treatment effects while remaining feasible in school settings. Because case use appears to be a bottleneck, research should also experimentally compare corpus-only discovery against hybrid designs that combine corpus evidence with explicit semantic instruction, structured input, and more extensive communicative practice targeting case contrasts.

A promising trajectory involves combining corpus-driven methods with generative AI scaffolds, as demonstrated by Liu and Ma (2025), who augmented low-level English vocabulary via custom GPTs emphasizing collocational scaffolding over mere definitions. Chen et al. (2025) further illustrated this synergy in a five-week English writing program, reporting that large language models alongside corpora significantly reduced cognitive burdens and elevated lexical finesse, though motivational gains waned post-follow-up. Similarly, Liu and Zou (2025) revealed EFL writers' preferences for corpora in honing pairings and AI for sentence tweaks, yielding positive tool attitudes. Future Kazakh applications could harness similar hybrids to dynamically generate tailored exemplars, mitigating the current design's static search limitations and amplifying inductive learning in agglutinative contexts.

6. Conclusion

These findings demonstrate that corpus-based pedagogy can generate meaningful benefits for lexical and select grammatical outcomes in a Turkic L2 sample, extending the evidence base for data-driven learning beyond Anglophone settings. However, the findings also highlight clear limits on what a six-month, twice-monthly corpus intervention can achieve. Writing accuracy and case morphology were not differentially improved, consistent with broader evidence that grammatical morphology acquisition is slow and resistant to short-term interventions.

The study was conducted within a specific post-Soviet multilingual context involving Russian-speaking seventh graders at A1 proficiency, and its findings should be interpreted within those boundaries rather than generalized broadly. In similar settings, where learners must acquire a morphologically complex indigenous language with limited out-of-school exposure, corpus-based activities integrated into structured output cycles likely offer a feasible and effective means of improving lexical quality and core grammatical constructions, provided that educators supplement corpus exploration with dedicated, extended instruction on those language features that resist short-term inductive learning.

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9. References

Alrajhi, A. S. (2024). The salient antecedents of boredom in formal English language learning. *Cogent Education, 11*(1). https://doi.org/10.1080/2331186X.2024.2342672

Arroyo-Romano, J. E. (2024). "My Spanish feels like my second language": Addressing the challenges of the academic language of bilingual teachers. *Journal of Latinos and Education, 23*(1), 403–423. https://doi.org/10.1080/15348431.2022.2146118

Aybek, S. (2025). To collocate or not to collocate: Exploring verb-noun collocations of Turkish EFL learners. *Sage Open, 15*(4). https://doi.org/10.1177/21582440251395720

Benati, A. (2023). The nature, role, and effects of structured input activities. *Languages, 8*(2), 135. https://doi.org/10.3390/languages8020135

Brock, W. A., Chen, B., Durlauf, S. N., & Weber, S. (2025). Everybody's talkin' at me: Levels of majority language acquisition by minority language speakers. *Economic Theory, 79*, 759–807. https://doi.org/10.1007/s00199-024-01602-8

Busse, V., Hennies, C., Kreutz, G., & Roden, I. (2021). Learning grammar through singing? An intervention with EFL primary school learners. *Learning and Instruction, 71*, 101372. https://doi.org/10.1016/j.learninstruc.2020.101372

Chen, C. Q., Huang, Z., Ye, X., & Jin, H. (2025). Integrating large language models with corpus-based language pedagogy: an approach to collocation use in L2 writing instruction. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2025.2532016

Elosua, P., & Lasagabaster, D. (2025). An analysis of the impact of the L1 on bilinguals' writing competence. *Journal of Second Language Writing, 67*, 101182. https://doi.org/10.1016/j.jslw.2025.101182

Fang, L., Ma, Q., & Yan, J. (2021). The effectiveness of corpus-based training on collocation use in L2 writing for Chinese senior secondary school students. *Journal of China Computer-Assisted Language Learning, 1*(1), 80–109. https://doi.org/10.1515/jccall-2021-2004

Garcés-Manzanera, A. (2024). Language bursts and text quality in digital writing by young EFL learners. *Journal of New Approaches in Educational Research, 13*, 12. https://doi.org/10.1007/s44322-024-00012-x

Gilquin, G. (2024). From second language acquisition research to foreign language teaching through the prism of corpora. *Ampersand, 13*, 100204. https://doi.org/10.1016/j.amper.2024.100204

He, T., & Li, C. (2025). An empirical study on the teaching mode of cultural translation in college English based on the Production Oriented Approach (POA). *PLoS ONE, 20*(6), e0326127. https://doi.org/10.1371/journal.pone.0326127

Huang, T., Wu, C., Zhang, W., & Chen, Y. (2025). The effect of production-oriented approach on Chinese university students' foreign language writing anxiety and English writing performance: Evidence from a longitudinal study. *SAGE Open, 15*(2). https://doi.org/10.1177/21582440251344016

Hwang, H., Chang, X., & Sun, J. (2025). Generative AI is useful for second language writing, but when, why, and for how long do learners use it? *Journal of Second Language Writing, 69*, 101230. https://doi.org/10.1016/j.jslw.2025.101230

Ismailova, A., Naubayeva, K., Zheldibayeva, R., & Kontrimienė, S. (2025). Self-esteem, social comparison, and interpersonal communication competence as predictors of students' psychological well-being. *Frontiers in Education, 10*, 1679209. https://doi.org/10.3389/feduc.2025.1679209

Khushik, G. A. (2025). Examining the effects of alternate prompts on syntactic complexity in EFL learners' essays at CEFR levels A1, A2, and B1. *Language Assessment Quarterly*. https://doi.org/10.1080/15434303.2025.2528019

Li, C., Feng, E., & Li, S. (2025a). Boredom and achievement in L2 learning: A meta-analysis. *Applied Linguistics Review*. https://doi.org/10.1515/applirev-2024-0266

Li, C., Zhou, C., & Zhang, W. (2022). The impact of an intensive English reading course based on the Production-Oriented Approach on the L2 Motivational self-system among Chinese university English majors from a Dynamic Systems Theory perspective. *Frontiers in Psychology, 12*, 761093. https://doi.org/10.3389/fpsyg.2021.761093

Li, D., Noordin, N., Ismail, L., & Cao, D. (2025b). A systematic review of corpus-based instruction in EFL classroom. *Heliyon, 11*(2), e42016. https://doi.org/10.1016/j.heliyon.2025.e42016

Li, L. X. (2022). Meta-analytical approach to the impact of corpus-driven teaching on foreign language acquisition. *Mobile Information Systems, 2022*, 5049312. https://doi.org/10.1155/2022/5049312

Lin, M. H. (2021). Effects of data-driven learning on college students of different grammar proficiencies: A preliminary empirical assessment in EFL classes. *Sage Open, 11*(3). https://doi.org/10.1177/21582440211029936

Liu, J., & Ma, Q. (2025). Supporting low-proficiency L2 learners' vocabulary learning with custom GPT-scaffolded corpus-based language pedagogy: A case study. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2025.2539152

Liu, T., & Zou, B. (2025). Enhancing students' L2 writing by integrating artificial intelligence with corpus-based language pedagogy. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2025.2539160

Liu, Y., & Lu, X. (2024). Development of verb argument constructions in L2 English learners: A close replication of research question 3 in Römer and Berger (2019). *Studies in Second Language Acquisition, 46*(5), 1373–1391. https://doi.org/10.1017/S027226312400024X

Lyu, J. (2025). A mixed-methods approach to the psychological predictors of boredom in second language learning: Mindfulness, grit, and self-regulation. *Frontiers in Psychology, 16*, 1609330. https://doi.org/10.3389/fpsyg.2025.1609330

Ma, Y., & Han, X. (2025). A corpus-based study of syntactic complexity in l2 Japanese writing: Insights from usage-based approaches. *Languages, 10*(11), 286. https://doi.org/10.3390/languages10110286

Mahmoudi-Gahrouei, V., Kruk, M., & Atefi Boroujeni, S. (2025). Turn over a new leaf: Classroom concordancing and L2 boredom among high school EFL learners. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2025.2552118

Manchón, R. M., McBride, S., Mellado Martínez, M. D., & Vasylets, O. (2023). Working memory, L2 proficiency, and task complexity: Independent and interactive effects on L2 written performance. *Studies in Second Language Acquisition, 45*(3), 737–764. https://doi.org/10.1017/S0272263123000141

Ngo, T. T.-N., & Chen, H. H.-J. (2025). The effectiveness of corpus use in ESL/EFL writing: A meta-analysis. *Language Teaching Research*. https://doi.org/10.1177/13621688241260183

Oktavianti, I. N., Budiwati, T. R., Prayudha, Prayogi, I., & Hidayah, I. N. (2026). Students' attitudes, challenges, and needs in English reading comprehension: Foundations for AI-integrated corpus-based language pedagogy. *Discover Education, 5*, 34. https://doi.org/10.1007/s44217-026-01115-7

Oraz, A., Malikov, K., Abenova, G., Sametova, Z., & Almautova, A. (2024). The effects of voice blogging on upper secondary students' L2 Kazakh speaking performance. *International Journal of Education and Practice, 12*(3), 1040–1053. https://doi.org/10.18488/61.v12i3.3821

Qin, W., Wang, W., & Zheng, Y. (2025). Enhancing argumentative writing with data-driven learning: Exploring developmental trajectories and learner profiles.

Learning and Individual Differences, 124, 102800. https://doi.org/10.1016/j.lindif.2025.102800

Qiu, X. (2024). Exploring the effect of corpus-based writing instruction on learner-corpus interaction in L2 revision: A study of Chinese EFL disciplinary writers. *TESOL Quarterly, 58*(3), 1108–1137. https://doi.org/10.1002/tesq.3308

Semenova, E., Khanolainen, D., & Nesterova, Y. (2024). Indigenous language education in Russia: current issues and challenges. *Journal of Multilingual and Multicultural Development, 45*(4), 790–804. https://doi.org/10.1080/01434632.2021.1921782

Shibata, M. (2021). L2 English speakers' perception of their English accent: An investigation of European and Asian attitudes. *English Language Teaching, 14*(12), 126-143. https://doi.org/10.5539/elt.v14n12p126

Sun, A. X., & Mizumoto, A. (2026). Exploring individual differences in AI-assisted and corpus-based data-driven learning: Insights into learners' perceptions and language learning outcomes. *International Journal of Applied Linguistics*. https://doi.org/10.1111/ijal.70063

Sun, L. (2024). Translanguaging pedagogy on the digital stage: Exploring Chinese undergraduates' English grammar learning through DingTalk platform. *Humanities and Social Sciences Communications, 11*, 1245. https://doi.org/10.1057/s41599-024-03771-2

Tabari, M. A., Zhuang, J., & Farahanynia, M. (2025). Task repetition and L2 written performance: A meta-analysis. *Journal of Second Language Writing, 70*, 101255. https://doi.org/10.1016/j.jslw.2025.101255

Tang, C. (2024). Cognitive linguistics: Fostering English language proficiency in higher education. *Asia-Pacific Education Researcher, 34*, 15–28. https://doi.org/10.1007/s40299-024-00833-6

Tlepbergen, D., Akzhigitova, A., & Zabrodskaja, A. (2025). Kazakh–English bilingualism in Kazakhstan: Public attitudes and language practices. *Languages, 10*(5), 102. https://doi.org/10.3390/languages10050102

Wang, W., & Lyu, C. (2025). The effectiveness of production-oriented approach on students' English language skills: A meta-analysis. *Asia-Pacific Education Researcher, 34*, 1763–1780. https://doi.org/10.1007/s40299-025-00990-2

Wang, X., Jing, J., & Zhang, Y. (2025). Effects of the production-oriented approach-based mobile learning on learning outcomes, motivation, and satisfaction in EFL context. *SAGE Open, 15*(3). https://doi.org/10.1177/21582440251357355

Wang, Z. (2023). Psychological factors and production behaviors of Chinese undergraduate EFL learners. *PLoS ONE, 18*(7), e0288014. https://doi.org/10.1371/journal.pone.0288014

White, E. E., & Starzyk, K. B. (2025). Psychological factors associated with knowing an Indigenous language. *First Nations Health and Wellbeing – the Lowitja Journal, 3*, 100085. https://doi.org/10.1016/j.fnhli.2025.100085

Xu, W., & Zhu, X. (2024). Examining metacognitive strategy use in L1 and L2 task-situated writing: Effects, transferability, and cross-language facilitation. *Metacognition and Learning, 19*, 773–792. https://doi.org/10.1007/s11409-024-09387-w

Yang, Y., & Ren, H. (2025). The efficacy of the corpus-based error correction method on revision in writing classrooms. *PLoS ONE, 20*(3), e0317574. https://doi.org/10.1371/journal.pone.0317574

Zhang, H., & Huang, F. (2025). Demystifying positive second language writing experience: The role of writing self-efficacy and motivational dynamics. *Language Teaching Research*. https://doi.org/10.1177/13621688251368641

Zhang, L. (2020). Motivating in the production-oriented approach: From theory to practice. *Chinese Journal of Applied Linguistics, 43*(3), 268–283. https://doi.org/10.1515/cjal-2020-0018

Zhang, R. (2022). Developing morphological knowledge with online corpora in an ESL vocabulary classroom. *Frontiers in Psychology, 13*, 927636. https://doi.org/10.3389/fpsyg.2022.927636

Zhao, A., Chen, F., & Li, X. (2026). The concurrent and longitudinal contributions of linguistic and cognitive skills to L2 writing quality. *Journal of Intelligence, 14*(1), 11. https://doi.org/10.3390/jintelligence14010011

Zhao, X., & Wang, D. (2024). Domain-specific L2 grit, anxiety, boredom, and enjoyment in online Chinese learning. *Asia-Pacific Education Researcher, 33*(4), 783–794. https://doi.org/10.1007/s40299-023-00777-3

Zheldibayeva, R., Nascimento, A. K. D. O., Castro, V., Kalantzis, M., & Cope, B. (2025). The impact of AI-driven tools on student writing development: A case study. *Online Journal of Communication and Media Technologies, 15*(3), e202526. https://doi.org/10.30935/ojcmt/16738