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ANALYSIS AND CORRECTION OF GRAMMATICAL ERRORS MADE BY UZBEK LEARNERS OF KOREAN USING ARTIFICIAL INTELLIGENCE TECHNOLOGIES

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ABSTRACT

This article investigates a linguistically grounded approach to identifying and correcting grammatical errors relevant to intermediate-level Uzbek learners of Korean using artificial intelligence (AI). Thirty constructed Korean examples are analyzed in three groups: morphosyntactic errors, semantic-functional mismatches, and pragmatic infelicities. The discussion distinguishes grammatical unacceptability from context-dependent variation, and proposes criteria for evaluating AI-generated corrections: error detection, grammatical accuracy, semantic preservation, pragmatic suitability, and explanatory quality. Drawing on established work in error analysis and corrective feedback, the article develops a five-stage pedagogical framework for diagnosis, classification, contextual interpretation, feedback, and reassessment. The examples are illustrative, not a corpus of authentic learner productions; no experimental AI accuracy or learning gains are claimed. The framework offers a transparent basis for subsequent classroom and expert-evaluation research.

Keywords: Korean as a foreign language; Uzbek learners; artificial intelligence; grammatical error analysis; corrective feedback; morphosyntax; pragmatics; language education.

1. INTRODUCTION

Grammatical accuracy is a central but multidimensional goal of second-language education. Learners must select well-formed expressions, convey their intended meanings, and adapt language to social circumstances. In Korean, particles, connective endings, aspectual constructions, and honorific or speech-level distinctions make these dimensions especially visible. Uzbek and Korean share broadly agglutinative characteristics and a frequent subject–object–verb ordering, yet similar typological profiles do not guarantee equivalent grammatical functions.

Error analysis treats learner errors as evidence of developing linguistic knowledge rather than simply failures to be eliminated (Corder, 1967). Written corrective feedback can be direct, indirect, or metalinguistic, with different implications for what learners notice and revise (Ellis, 2009). Large language models may generate corrections and explanations at scale, but their outputs require scrutiny for accuracy, contextual fit, and educational value (Kasneci et al., 2023).

This article asks: (1) What linguistic distinctions are represented by typical intermediate Korean grammar tasks? (2) How should proposed AI corrections be assessed? (3) How might teachers integrate such feedback into a principled instructional cycle? Its contribution is a qualitative analysis of 30 purpose-built examples and a proposed instructional framework, not a report of experimental performance.

2. THEORETICAL FRAMEWORK

Corder (1967) established the significance of learner errors for understanding second-language development. An isolated incorrect sentence, however, does not identify its cause: transfer, overgeneralization, incomplete knowledge, and performance lapses require different evidence.

Therefore, this study describes possible error mechanisms without attributing any constructed example to an actual Uzbek student.

Corrective feedback should make the relationship between form, function, and context explicit. Ellis (2009) differentiates approaches including direct corrections and metalinguistic clues. In Korean, an automatic system may correctly fix an object particle while wrongly flagging a grammatical but contextually unusual honorific choice. These outcomes must be evaluated separately. Korean grammatical structure and social meaning are extensively documented in Sohn (1999).

AI models can generate multiple contexts, contrasting examples, and practice exercises; however, plausible output is not equivalent to verified linguistic judgment. Human oversight and critical evaluation are necessary in educational applications (Kasneci et al., 2023).

3. MATERIALS AND METHOD

The dataset comprises 30 constructed examples selected to illustrate phenomena appropriate to intermediate Korean study (approximately TOPIK 3–4). Examples 1–10 concern morphosyntax; 11–20 concern semantics and grammatical function; 21–30 concern pragmatics. Each item presents a problematic expression, an intended correction or alternative, an English gloss, and an analytical note. Where a sentence is grammatical under another interpretation, it is explicitly marked "context-dependent" rather than intrinsically incorrect.

The procedure is qualitative and descriptive: identify the relevant construction, specify intended meaning or setting, compare the alternative, and assess what a pedagogically useful AI explanation should say. No learner corpus was collected and no controlled AI benchmark was run. A future benchmark should preserve prompts, model version, date, reference corrections, and blinded expert ratings.

4. ANALYSIS OF 30 KOREAN EXAMPLES

Example 1 — Morphosyntax

Original: 저는 한국어가 공부합니다.

Suggested correction / alternative: 저는 한국어를 공부합니다.

Meaning: I study Korean.

Linguistic interpretation: 공부하다 is transitive in this use, so 한국어 is its object and takes 를. The original particle 가 wrongly presents the language as the grammatical subject.

Example 2 — Morphosyntax

Original: 친구를 학교에 왔어요.

Suggested correction / alternative: 친구가 학교에 왔어요.

Meaning: My friend came to school.

Linguistic interpretation: 오다 is intransitive here: 친구 is the person arriving and is marked as subject with 가. The original 를 does not match that argument structure.

Example 3 — Morphosyntax

Original: 저는 도서관을 공부해요.

Suggested correction / alternative: 저는 도서관에서 공부해요.

Meaning: I study at the library.

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Linguistic interpretation: 도서관 names the place where studying occurs. The activity-location particle 에서 is required for this reading; 을 would instead mark an object.

Example 4 — Morphosyntax

Original: 어제 친구를 만나요.

Suggested correction / alternative: 어제 친구를 만났어요.

Meaning: I met my friend yesterday.

Linguistic interpretation: 어제 locates the meeting in the past. 만났어요 expresses the completed event, whereas 만나요 normally suggests a present or habitual reading.

Example 5 — Morphosyntax

Original: 저는 책을 읽는 좋아해요.

Suggested correction / alternative: 저는 책을 읽는 것을 좋아해요.

Meaning: I like reading books.

Linguistic interpretation: The nominalized clause 책을 읽는 것 serves as the object of 좋아하다. Omitting 것 leaves the modifier 읽는 without the noun it is intended to modify.

Example 6 — Morphosyntax

Original: 제가 어제 만나는 사람은 선생님이에요.

Suggested correction / alternative: 제가 어제 만난 사람은 선생님이에요.

Meaning: The person I met yesterday is a teacher.

Linguistic interpretation: The meeting precedes the time of speaking, so the adnominal form 만난 is appropriate. 만나는 instead describes a present or habitual relationship to the person.

Example 7 — Morphosyntax

Original: 저는 한국에 세 년 살았어요.

Suggested correction / alternative: 저는 한국에 삼 년 살았어요.

Meaning: I lived in Korea for three years.

Linguistic interpretation: The counter 년 normally follows Sino-Korean numerals, hence 삼 년. This is a conventional numeral-classifier pattern rather than a general ban on native Korean numerals.

Example 8 — Morphosyntax

Original: 저는 한국어를 잘 말하고 싶어요 할 수 있어요.

Suggested correction / alternative: 저는 한국어를 잘 말할 수 있게 되고 싶어요.

Meaning: I want to become able to speak Korean well.

Linguistic interpretation: The original places two finite predicates next to each other without a connective. The proposed version expresses the desired future ability through –(으)ㄹ 수 있게 되다, but other rewrites are possible.

Example 9 — Morphosyntax

Original: 이 음식은 맛있은 것 같아요.

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Suggested correction / alternative: 이 음식은 맛있는 것 같아요.

Meaning: This food seems delicious.

Linguistic interpretation: 맛있다 forms the adnominal 맛있는 before 것. The form 맛있은 does not follow the standard conjugation pattern.

Example 10 — Morphosyntax

Original: 저는 한국어를 배우기 시작했어요부터.

Suggested correction / alternative: 저는 한국어를 배우기 시작했어요.

Meaning: I started learning Korean.

Linguistic interpretation: The sentence is complete after 시작했어요. A temporal starting point would need to be introduced in a syntactically suitable position; the trailing 부터 has no host.

Example 11 — Semantic-functional

Original: 시간이 없어서 빨리 가세요.

Suggested correction / alternative: 시간이 없으니까 빨리 가세요.

Meaning: Since there is no time, please hurry.

Linguistic interpretation: In standard classroom descriptions, –(으)니까 readily introduces a reason for an imperative. The contrast should be explained as a constructional preference, not as an unrestricted ban on –아서/어서.

Example 12 — Semantic-functional

Original: 비가 와서 우산을 가져가세요.

Suggested correction / alternative: 비가 오니까 우산을 가져가세요.

Meaning: Since it is raining, take an umbrella.

Linguistic interpretation: The request 가져가세요 follows a reason clause. –(으)니까 is the expected instructional pattern here; any judgment about alternatives should consider discourse and register.

Example 13 — Semantic-functional

Original: 문을 열고 있어요.

Suggested correction / alternative: 문이 열려 있어요.

Meaning: The door is open.

Linguistic interpretation: The original can mean someone is in the process of opening the door. 문이 열려 있어요 instead describes the resulting open state; the choice depends on the intended scene.

Example 14 — Semantic-functional

Original: 저는 지금 숙제를 해 있어요.

Suggested correction / alternative: 저는 지금 숙제를 하고 있어요.

Meaning: I am doing homework now.

Linguistic interpretation: The intended ongoing activity is expressed by 하고 있어요. 해 있어요 does not supply the normal progressive construction for 숙제를 하다.

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Example 15 — Semantic-functional

Original: 한국어를 공부하는 후에 쉬어요.

Suggested correction / alternative: 한국어를 공부한 후에 쉬어요.

Meaning: I rest after studying Korean.

Linguistic interpretation: 후에 combines with a past adnominal form, here 공부한. The construction refers to an event after the completion of studying.

Example 16 — Semantic-functional

Original: 시간이 많으면 좋겠지만 지금 시간이 없을 거예요.

Suggested correction / alternative: 시간이 많으면 좋겠지만 지금은 시간이 없어요.

Meaning: I wish I had more time, but I have none now.

Linguistic interpretation: 없을 거예요 conveys prediction or inference, while 없어요 states a present fact. The alternative is preferable only when the speaker knows that there is no time now.

Example 17 — Semantic-functional

Original: 저는 한국에 가기 위해서 한국어를 배우고 싶어요 때문에.

Suggested correction / alternative: 저는 한국에 가기 위해서 한국어를 배우고 싶어요.

Meaning: I want to learn Korean to go to Korea.

Linguistic interpretation: The purpose clause 가기 위해서 already explains why the speaker wants to study Korean. The final 때문에 is unconnected and redundant in this structure.

Example 18 — Semantic-functional

Original: 저는 한국어를 배운 적이 있어요. 그래서 지금도 배우고 있어요.

Suggested correction / alternative: 저는 예전에 한국어를 배웠고 지금도 계속 배우고 있어요.

Meaning: I studied Korean before and continue studying it.

Linguistic interpretation: The original can be grammatical: having studied Korean before does not prevent studying it now. The suggested version makes the continuity explicit, so this is a discourse revision rather than an error correction.

Example 19 — Semantic-functional

Original: 한국어가 어렵지만 그래서 재미있어요.

Suggested correction / alternative: 한국어가 어렵지만 재미있어요.

Meaning: Korean is difficult but interesting.

Linguistic interpretation: –지만 already establishes contrast. In the intended reading, inserting 그래서 introduces an incompatible causal link; deleting it gives a coherent contrast.

Example 20 — Semantic-functional

Original: 저는 한국어를 잘하기 때문에 매일 공부해요.

Suggested correction / alternative: 저는 한국어를 잘하기 위해서 매일 공부해요.

Meaning: I study daily in order to become good at Korean.

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Linguistic interpretation: –기 때문에 expresses a reason, whereas –기 위해서 introduces purpose. The proposed revision matches the stated goal of improving Korean, but the original could be appropriate with another intended meaning.

Example 21 — Pragmatics

Original: 선생님, 이거 봐.

Suggested correction / alternative: 선생님, 이것 좀 봐 주세요.

Meaning: Teacher, please look at this.

Linguistic interpretation: 봐 is a plain informal command. Addressing a teacher usually calls for a polite request such as 봐 주세요; social relationship is central to this judgment.

Example 22 — Pragmatics

Original: 만나서 반가워.

Suggested correction / alternative: 만나서 반갑습니다.

Meaning: It is a pleasure to meet you.

Linguistic interpretation: 반가워 is natural among close interlocutors. A formal first meeting instead generally motivates 반갑습니다, without making the informal form ungrammatical.

Example 23 — Pragmatics

Original: 선생님이 왔어요.

Suggested correction / alternative: 선생님께서 오셨어요.

Meaning: The teacher has arrived.

Linguistic interpretation: 선생님이 왔어요 is grammatically possible. 선생님께서 오셨어요 adds subject honorification through 께서 and –시–; appropriateness depends on the speaker's stance.

Example 24 — Pragmatics

Original: 내일까지 보내.

Suggested correction / alternative: 내일까지 보내 주시겠습니까?

Meaning: Could you send it by tomorrow?

Linguistic interpretation: 보내 is a plain command. 보내 주시겠습니까? frames the act as a deferential request, suitable when the addressee has higher institutional status.

Example 25 — Pragmatics

Original: 지금 어디에 가십니까?

Suggested correction / alternative: 지금 어디 가?

Meaning: Where are you going?

Linguistic interpretation: 가십니까? is a valid formal question. 어디 가? is plausible between close friends who mutually use informal speech; the change is one of register, not grammaticality.

Example 26 — Pragmatics

Original: 선생님, 뭐 해?

Suggested correction / alternative: 선생님, 지금 무엇을 하고 계세요?

Meaning: Teacher, what are you doing now?

Linguistic interpretation: 뭐 해? presupposes an informal relationship. 무엇을 하고 계세요? uses polite style and the honorific predicate 계시다 for a teacher.

Example 27 — Pragmatics

Original: 지금부터 발표할게.

Suggested correction / alternative: 지금부터 발표하겠습니다.

Meaning: I will now begin my presentation.

Linguistic interpretation: 발표할게 can sound conversational and personally oriented. 발표하겠습니다 better matches the public, formal setting of an academic presentation.

Example 28 — Pragmatics

Original: 앉아.

Suggested correction / alternative: 앉으세요.

Meaning: Please sit down.

Linguistic interpretation: 앉아 is appropriate only where informal commands are socially licensed. 앉으세요 uses a polite imperative for an older or less familiar interlocutor.

Example 29 — Pragmatics

Original: 이 서류를 확인해.

Suggested correction / alternative: 이 서류를 확인해 주시기 바랍니다.

Meaning: Please review this document.

Linguistic interpretation: 확인해 is an informal directive. 확인해 주시기 바랍니다 is an institutional written request; the context, not syntax alone, determines the preferable form.

Example 30 — Pragmatics

Original: 고마워.

Suggested correction / alternative: 감사합니다.

Meaning: Thank you.

Linguistic interpretation: 고마워 is natural among peers or intimates. 감사합니다 is more suitable for expressing thanks to a teacher in a formal educational context.

5. PROPOSED AI-ASSISTED CORRECTION FRAMEWORK

Stage 1 — Diagnosis

Collect authentic student work with appropriate consent and preserve original context. AI may flag candidate issues but must not overwrite the learner's wording.

Stage 2 — Classification

Separate structural errors, meaning-related mismatches, and pragmatic infelicities; do not conflate stylistic alternatives with grammatical violations.

Stage 3 — Contextual interpretation

Record the learner's intended meaning, interlocutor relationship, and communicative purpose. Ask for clarification when context is insufficient.

Stage 4 — Corrective feedback

Provide a proposed revision, an explanation of the relevant rule, and a contrastive example. Teachers verify suggestions before instructional use.

Stage 5 — Reassessment

Use fresh transfer tasks to determine whether the learner can independently apply the distinction, rather than merely copy a correction.

6. EVALUATION CRITERIA AND DISCUSSION

AI-generated output should be assessed along five independent dimensions: (1) error detection, including false positives; (2) grammatical correctness of the proposed revision; (3) preservation of intended meaning; (4) pragmatic appropriateness; and (5) explanatory accuracy and usefulness. A correct revised sentence accompanied by a misleading explanation should not receive a high score on explanatory quality.

The constructed set illustrates why evaluation needs a contextual gold standard. Items 18, 23, and 25 are not necessarily errors; they contrast acceptable expressions with alternatives better suited to a particular communicative setting. Similarly, items 13, 16, and 20 depend on the intended proposition. A system that labels all originals "ungrammatical" would overcorrect. For empirical testing, expert raters should independently classify items and resolve disagreements before comparing AI outputs.

Potential first-language influence should be investigated, not assumed. Although Uzbek and Korean exhibit structural similarities, no causal claim about Uzbek learners can be established from these invented examples. Future studies should gather anonymized learner compositions, document proficiency, use standardized prompts, and report accuracy separately for error types. Teacher oversight, privacy protection, and model-version reporting are necessary for reproducibility.

7. CONCLUSION

Korean grammatical correction requires attention to structure, meaning, and social context. This article analyzed 30 constructed examples and developed a five-stage framework for teacher-supervised AI-assisted feedback. The analysis shows that many apparent "errors" are better understood as context-dependent choices and that an automated system must distinguish grammatical violations from differences in style, intention, or politeness. AI may support explanations and personalized practice, but its effectiveness for Uzbek learners remains an empirical question. A controlled study using authentic learner productions and independent expert ratings is needed before claims about performance or learning gains can be made.

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5. Scope of the evidence: The examples are researcher-constructed illustrations; they are not observations of learner performance or results of a tested AI system.