

Linguodidactic Foundations of Using Ai Tools in Russian Language Education

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Abstract: This article investigates the linguodidactic foundations for using AI tools in Russian language education, emphasizing how language models can support the development of linguistic, speech, and sociocultural competences without weakening pedagogical validity. The aim is to construct a principled framework that aligns AI-supported activities with communicative, activity-based, and text-centric traditions of language teaching. Methodologically, the study integrates conceptual analysis of key linguodidactic constructs, design-based modeling of AI-mediated learning scenarios, and comparative mapping of task types to receptive and productive skills. The scientific novelty is a multi-level model that links language units, communicative intentions, and assessment rubrics to concrete AI affordances such as feedback generation, scaffolded prompting, and adaptive differentiation. The article proposes measurable quality indicators, including error typology stability, genre adequacy, cohesion metrics, and discourse pragmatics. Practical significance is articulated through recommendations for curriculum integration, teacher mediation, and risk management related to hallucinations, bias, and learner overreliance.

Keywords: Artificial intelligence; Russian language pedagogy; linguodidactics; competency-based education; automated feedback; academic integrity; adaptive learning.

Introduction: Linguodidactics defines the object of language education not as a sum of grammar rules but as the organized formation of speech activity, discourse competence, and culturally conditioned meaning-making, and this definition becomes methodologically sensitive when AI tools enter classroom practice. The mechanism of this sensitivity lies in the fact that AI systems produce and transform texts, imitate dialogue, and generate feedback, thereby intervening directly in the very medium through which linguistic competence is built, namely text and interaction, and thus they can shift the balance between learner production, teacher mediation, and normative models of the language. A concrete example is the widespread use of generative chat systems for drafting Russian essays, paraphrasing, and error correction, where the learner may receive fluent output without understanding morphosyntactic

agreement or aspectual choices, which are central for Russian as a system. In institutional surveys of higher education, usage rates of generative AI among students commonly exceed half of respondents, and classroom pilots in language courses often report that a substantial minority uses AI weekly for writing and translation support, indicating that the phenomenon is no longer marginal but structurally present in learning ecology. The scientific implication is that linguodidactic theory must specify conditions under which AI-mediated text production supports internalization of language norms and communicative strategies rather than replacing them, which requires explicit models of mediation, task design, and assessment aligned with competence formation [1; 2].

A second problem concerns the validity of pedagogical control and the ethics of academic integrity when AI

tools provide hidden assistance, which challenges traditional assumptions about authorship, error diagnosis, and feedback loops. The mechanism here is that AI output can mask the learner's interlanguage state by reducing observable errors and by producing discourse coherence beyond the learner's independent capacity, thus undermining the diagnostic function of mistakes that teachers use to plan instruction. For example, a student may submit an argumentation text in Russian with near-native cohesion and appropriate lexical collocations, while oral performance reveals limited control of case government and verb aspect, creating a mismatch between written product and underlying competence. In many university settings, misconduct cases linked to AI-assisted writing have become visible in disciplinary statistics, and even where formal sanctions are rare, teachers report increased uncertainty in grading and feedback allocation, which is measurable as longer marking time and higher inter-rater disagreement in writing assessment. The scientific explanation is that assessment in language education is not only summative but formative, and the presence of AI requires new constructs of transparency and provenance, alongside redesigned rubrics that evaluate process evidence, revision history, and metalinguistic reflection rather than only final texts [3].

A third dimension is didactic effectiveness, meaning whether AI improves learning outcomes when integrated under teacher guidance, rather than serving as an external shortcut. The mechanism of potential effectiveness is that AI can provide immediate, individualized input, generate multiple examples, and offer micro-level explanations and drills aligned with learner needs, which corresponds to principles of differentiation and scaffolded practice central to modern language pedagogy. For instance, in Russian grammar learning, an AI tutor can generate minimal pairs for aspect (писать versus написать), create case declension exercises contextualized in short dialogues, and explain errors with references to communicative intent, enabling repeated practice beyond limited classroom time. Controlled classroom experiments in educational technology frequently show small to moderate gains from adaptive tutoring and automated feedback, often in the range of a fraction of a standard deviation, and time-on-task indicators typically increase when learners perceive feedback as

immediate and personalized, although effects depend on task design and teacher mediation. The scientific perspective is that effectiveness cannot be assumed from technological capability, because linguodidactic value depends on aligning AI affordances with the structure of speech activity, ensuring that learners engage in purposeful meaning construction, reflection, and transfer to independent performance [4; 5].

The aim of the present study is to establish linguodidactic foundations for using AI tools in Russian language education by proposing a principled model that connects AI functions with competence targets, task typology, and assessment criteria. The mechanism of achieving this aim is a systematic mapping between the levels of language description, namely phonetics and graphics, lexis and phraseology, morphology and syntax, and text and discourse, and the pedagogical actions, namely presentation, practice, production, and reflection, with explicit teacher mediation roles. A practical example of this mapping is specifying which AI functions are acceptable for receptive tasks such as reading comprehension and listening scripts, and which require restrictions for productive tasks such as essay writing or oral exam preparation, as well as how to document learner-AI interaction for transparency. In program design terms, such mapping can be implemented as a matrix of learning outcomes against AI-enabled activities, where each cell includes a risk level and verification procedure, making the model operational for curriculum committees. The scientific novelty lies in integrating competence-based education with an activity-and-text centered linguodidactic model under conditions of algorithmic text generation, thereby contributing to specialty 13.00.02 by clarifying methodical principles for Russian language teaching in a new technological environment [6].

METHODS

The study relies on a theoretical and design-based methodology that treats AI tools as mediating artifacts within a pedagogical system, rather than as independent instructors, and therefore analyzes their functions through linguodidactic categories. The mechanism of this approach is to decompose AI-supported learning into components that are methodologically observable, including input type, prompt structure, feedback format, learner revision

actions, and teacher verification, and then to align these components with competence descriptors and task objectives. For example, a prompt that asks an AI system to “correct my text” is methodologically underdetermined, whereas a prompt that requests identification of case errors with explanations, followed by learner rewriting and teacher checking, is a structured learning cycle with traceable outcomes. In this study, a corpus of representative AI-mediated task scenarios was modeled across common course modules in Russian as a foreign language and Russian as a second language, covering grammar, vocabulary, writing, and speaking preparation, and the scenarios were evaluated against criteria of validity, reliability, and learnability. The scientific rationale is consistent with established positions in educational technology research that emphasize alignment, mediation, and evidence of learning processes, while also respecting linguodidactic principles of speech activity formation and text work [4; 7].

The materials consisted of a structured set of AI-mediated task prototypes and evaluation rubrics designed for Russian language education at intermediate proficiency levels, along with analytic templates for error typology and discourse quality. The mechanism for selecting these materials was to ensure coverage of both receptive and productive skills, and to include tasks that target the main linguistic subsystems relevant for Russian, such as aspect and tense, case system, verbal government, word order, and cohesion devices, because these subsystems generate the most persistent learner difficulties. A concrete example is an AI-supported micro-task where learners receive three alternative formulations of a request in Russian, compare politeness strategies, and then justify which is appropriate in a given social context, thereby connecting grammar, pragmatics, and sociocultural norms. The dataset included multiple variants of each prototype to test stability of feedback and to observe whether AI suggestions remain consistent across paraphrased inputs, a property relevant to reliability of automated guidance. The scientific explanation is that linguodidactic materials must be analyzed not only for correctness but for pedagogical function, because even linguistically correct AI output can be didactically unhelpful if it removes problem-solving effort or provides explanations that do not match the learner’s

conceptual level.

The method of analysis combined conceptual mapping, comparative task analysis, and rubric-based evaluation of outputs produced with and without AI assistance. The mechanism is that conceptual mapping defines the theoretical links between competence targets and AI affordances, comparative analysis identifies where AI changes the cognitive and communicative demands of tasks, and rubrics provide measurable indicators for quality control and alignment with assessment. For example, in a writing task, the rubric distinguishes local grammatical accuracy, lexical appropriacy, genre structure, cohesion, and pragmatic adequacy, and then checks which dimensions are improved by AI and which are merely cosmetically enhanced without learner understanding. A quantitative element was introduced through frequency counts of error categories and through cohesion indicators such as the rate of referential ties per 100 words and the diversity of connectives, which are widely used in discourse analysis, allowing structured comparison across conditions. The scientific justification is that a mixed analytic design avoids the extremes of purely speculative theorizing and purely instrumental evaluation, and it supports a linguodidactic conclusion about when AI acts as scaffolding and when it acts as substitution.

RESULTS

The first result is a multi-level linguodidactic model of AI integration in Russian language education, in which the object of instruction is defined across language system, speech activity, and discourse practice, and AI functions are assigned roles at each level. The mechanism of the model is hierarchical: at the micro-level, AI supports noticing and controlled practice of linguistic forms, at the meso-level it supports planning and revision of utterances, and at the macro-level it supports genre modeling and pragmatic variation, while teacher mediation ensures correctness, appropriacy, and learning accountability. A concrete example at the micro-level is using AI to generate paradigms and contextualized drills for declension patterns, such as the transformation of “в университете” to “из университета” with explanation of prepositional versus genitive case, enabling repeated, varied practice. In the modeled tasks, the proportion of immediate corrective feedback

opportunities increased substantially compared to teacher-only feedback cycles, because AI can respond instantly to repeated attempts, which in typical classroom settings are limited by time, and this yields a measurable increase in practice density. The scientific interpretation is that AI can operationalize the principle of intensification of practice, but only if tasks preserve learner agency, require self-correction, and prevent full outsourcing of production.

The second result is a typology of AI-supported tasks aligned with competence outcomes and risk levels, distinguishing scaffolding tasks from substitution tasks and specifying verification procedures. The mechanism is that each task is characterized by the locus of difficulty, such as form selection, meaning differentiation, discourse organization, or sociocultural appropriacy, and AI is permitted only to assist where it amplifies feedback and exemplification rather than replacing the learner's decision-making. For example, for vocabulary development, AI may propose collocations for the lemma "принимать" such as "принимать решение" and "принимать участие," but the learner must choose collocations that fit a communicative situation and must justify the choice using context, thus keeping semantic control with the learner. In rubric-based evaluation, tasks that allowed AI to generate full essays showed high surface coherence and reduced local errors, but they also showed reduced variability in learner-specific features and weaker correspondence with oral competence, which can be quantified by larger discrepancies between writing scores and speaking scores under the same proficiency descriptors. The scientific explanation is that linguodidactic validity depends on preserving the productive struggle that leads to internalization, and therefore tasks must be designed so that AI assistance remains partial, transparent, and accountable.

The third result is a set of measurable quality indicators for AI-mediated learning in Russian, including linguistic correctness, discourse coherence, genre adequacy, and transparency of process, with proposed thresholds for classroom monitoring. The mechanism is to operationalize indicators that teachers can apply without specialized computational infrastructure,

while still maintaining methodological rigor, and to link each indicator to a pedagogical intervention. For instance, an error typology checklist distinguishes agreement errors, case government errors, aspect errors, word order errors, and lexical compatibility errors, and then requires the learner to annotate at least a subset of corrections with rule references or meaning explanations, turning feedback into metalinguistic reflection. A numerical monitoring scheme can be implemented as counts per 100 words for error categories, alongside a cohesion index such as the number of explicit connectives and anaphoric references per 100 words, enabling comparison across drafts and across students in a group. The scientific implication is that quantification supports formative assessment and helps prevent the illusion of competence created by AI-polished texts, because stable reductions in error rates across independent, supervised tasks provide stronger evidence of learning than improvements in AI-assisted submissions.

A comparative analysis table was developed to present how AI tools interact with key linguodidactic parameters in Russian language education, and it can be used as a planning instrument for course design. The mechanism of the table is contrastive alignment, showing for each skill area the typical pedagogical goal, an AI affordance, a risk, and a control measure, thereby translating theory into operational decisions. A concrete example is writing instruction, where the goal is genre mastery and coherent argumentation, the AI affordance is outlining and feedback on cohesion, the risk is ghostwriting and loss of authorship, and the control measure is in-class timed writing plus process logs of prompts and revisions. In pilot implementations, educators who used such planning matrices reported clearer boundaries for acceptable AI use and more consistent grading, and training sessions often reduced policy ambiguity, which can be expressed as fewer contested grades and fewer suspected integrity incidents. The scientific interpretation is that the table acts as a mediating artifact for teachers, supporting methodological consciousness and consistent application of linguodidactic principles.

Table 1. Comparative Mapping of AI Affordances to Linguodidactic Parameters in Russian Language Education

Skill Area	Pedagogical Target	AI Affordance	Risk	Control Measure
Grammar Accuracy	Internalization of paradigms and rule-based choices	Immediate error detection and generation of minimal pairs	Mechanical correction without understanding	Learner explanation of corrections and supervised transfer tasks
Vocabulary and Collocation	Semantic precision and combinability	Collocation suggestions and contextual examples	Inappropriate register and false collocations	Corpus verification tasks and teacher-approved lexical notebooks
Writing and Genre	Discourse organization and rhetorical moves	Outlining, cohesion feedback, style diagnostics	Ghostwriting and homogenized voice	Draft history, prompt disclosure, in-class writing checks
Speaking and Interaction	Fluency with pragmatic adequacy	Role-play dialogue simulation	Reduced spontaneous production and scripted dependence	Live oral assessment and reflection on pragmatic choices
Reading and Mediation	Inference and summarization	Adaptive questions and summary comparison	Shortcut summaries without comprehension	Evidence-based answers with textual references

DISCUSSION

The results align with the broader understanding in linguodidactics that tools are pedagogically meaningful only within structured activity systems, and AI therefore must be treated as a regulated mediator rather than an autonomous source of knowledge. The mechanism that explains this alignment is that language competence develops through cycles of intention, formulation, monitoring, and correction, and AI can support monitoring and correction, but it cannot replace the learner's intention formation and responsibility for meaning without undermining competence growth. For example, when AI is used for micro-level feedback on case endings, learners can focus attention on form-meaning mapping and improve accuracy over successive drafts, but when AI generates entire responses, the learner's cognitive load shifts away from formulation, reducing opportunities for automatization of morphosyntax. Empirical patterns in educational technology research commonly show that feedback is beneficial when it is timely, specific, and requires learner action, whereas fully automated production can produce short-term performance gains without durable learning, a distinction consistent with the scaffolding versus substitution typology proposed here. The scientific contribution is thus a refined linguodidactic articulation of how AI support can be constrained to preserve the essential mechanisms of speech activity development

while leveraging personalization benefits [4; 5].

In comparison with existing approaches, the proposed model extends competence-based frameworks by providing concrete indicators and control measures specifically tuned to Russian language structures and discourse norms. The mechanism of this extension is the explicit linking of Russian-specific difficulty zones, such as aspectual semantics, case government, and lexical compatibility, to AI-mediated feedback procedures and verification tasks, which are often missing in generic AI-in-education guidelines. For instance, aspect choice in Russian depends on event structure and communicative framing, and an AI system may offer a correct form without explaining the underlying semantic contrast, so the model requires learner paraphrase and meaning justification as part of the task cycle, which turns AI output into a stimulus for reflection rather than a final answer. Classroom-oriented statistics, such as stable reductions in aspect and case errors across supervised tasks, are more convincing for learning claims than improvements in AI-assisted homework, and the proposed indicators focus precisely on transfer evidence. The scientific explanation is that linguodidactics demands domain-specific operationalization, and Russian language pedagogy requires special attention to systemic morphology and discourse pragmatics, which can be supported but also distorted by AI if constraints are absent [2; 6].

The discussion also clarifies limitations, because AI tools introduce risks that are methodologically significant and cannot be eliminated solely through policy statements. The mechanism of these risks includes hallucinated linguistic explanations, inconsistent correction standards, bias in register and cultural references, and learner overreliance that reduces independent production, all of which interact with teacher workload and assessment fairness. A concrete example is an AI-generated explanation that incorrectly generalizes a declension rule or mislabels a case function, leading to fossilization of misconceptions if the teacher does not verify, and such errors can be sporadic, making them harder to detect than systematic textbook mistakes. In practice, teachers report that verification and prompt training require additional instructional time, and program-level implementations often need professional development sessions, which can be quantified as additional contact hours or training modules per semester. The scientific implication is that future research must evaluate not only learner outcomes but also instructional cost, reliability of AI feedback across contexts, and the effectiveness of transparency mechanisms such as prompt disclosure and process portfolios, thereby integrating pedagogical, ethical, and organizational dimensions [7].

CONCLUSION

The study established linguodidactic foundations for using AI tools in Russian language education by proposing a multi-level model that aligns AI affordances with language-system learning, speech activity development, and discourse practice under teacher mediation. It demonstrated that pedagogical value emerges when AI is used for scaffolded feedback, exemplification, and adaptive practice while preserving learner responsibility for meaning, decision-making, and revision. A task typology distinguishing scaffolding from substitution was articulated, enabling educators to select AI-supported activities that maintain assessment validity and support competence formation. Measurable quality indicators were offered, including error typology monitoring, cohesion and genre adequacy checks, and process transparency requirements that help prevent the illusion of competence from AI-polished texts. The article also synthesized operational control measures, such as

supervised transfer tasks and prompt disclosure, to balance personalization benefits with integrity and reliability. Overall, AI integration is shown to be methodologically feasible when anchored in linguodidactic principles, made transparent as a learning tool, and embedded within coherent curriculum and assessment design.

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