Вестник Тамбовского университета. Серия: Гуманитарные науки Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities Print ISSN 1810-0201, Online ISSN 2782-5825 https://vestsutmb.elpub.ru

Original article https://doi.org/10.20310/1810-0201-2025-30-1-50-66





The use of corrective feedback from generative artificial intelligence in teaching a professional foreign language to students of an agricultural university





Voronezh State Agrarian University named after Emperor Peter the Great 1 Michurina St., Voronezh, 394087, Russian Federation *Corresponding author: tokmakova.jul@yandex.ru

Abstract

Importance. The methodological potential of evaluative corrective feedback from the generative artificial intelligence (AI) means is beginning to be used by teachers in teaching learners and students written foreign language utterance. At the same time, the use of extracurricular practice by students of a non-linguistic university with tools and in order to receive corrective feedback in the subject-language integrated teaching of a professional foreign language has not been studied separately. The goal of the study is to develop the methodology stages for using corrective feedback from generative AI in teaching a professional foreign language, conducting experimental training and empirically verifying the effectiveness of this technique.

Materials and Methods. The study involved students of the Veterinary Medicine department of Voronezh State Agrarian University named after Emperor Peter the Great. The students of the control group (N = 43) participated in subject-language integrated learning without using generative AI tools. The students of the experimental group (N = 43) participated once a week in extracurricular work with the DeepSeek neural network in order to receive evaluative corrective feedback when performing integrated tasks. During the experiment, three aspects were controlled: a) the lexical side of speech; b) the grammatical side of speech; c) the professional content of the utterance. The Student's *t*-test is used for statistical analysis of the data.

Results and Discussion. The study proved the methodology effectiveness of using evaluative corrective feedback from generative AI in subject-language integrated learning in all controlled aspects: a) lexis (t = 5.24 at p < 0.05); b) grammar (t = 4.74 at p < 0.05); c) the professional content of the utterance (t = 6.04 at p < 0.05).

Conclusion. In the course of the study, a step-by-step methodology is developed for using evaluative corrective feedback from generative AI in subject-language integrated learning. The perspective of this study lies in using an approach to integrate students' practice with professionally oriented AI tools into the subject-language education of students at a non-linguistic university.

Keywords: artificial intelligence, content and language integrated learning, integrated tasks, professional foreign language, DeepSeek neural network

Funding. None.

Authors' Contribution: Yu.V. Tokmakova - research concept, methodology development, scientific guidance, writing - original draft preparation, has edited the manuscript. E.S. Saenko - review of scientific literature, investigation, statistical data processing.

Conflict of Interests. The authors declare no conflict of interests.

For citation: Tokmakova, Yu.V., & Saenko, E.S. (2025). The use of corrective feedback from generative artificial intelligence in teaching a professional foreign language to students of an agricultural university. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 30, no. 1, pp. 50-66. https://doi.org/10.20310/1810-0201-2025-30-1-50-66

Научная статья УДК 372.881.111.1 https://doi.org/10.20310/1810-0201-2025-30-1-50-66

Использование корректирующей обратной связи от генеративного искусственного интеллекта в обучении профессиональному иностранному языку студентов аграрного вуза

Юлия Валерьевна Токмакова 🕩*, Елена Сергеевна Саенко 🗈

ФГБОУ ВО «Воронежский государственный аграрный университет им. императора Петра I» 394087, Российская Федерация, г. Воронеж, ул. Мичурина, 1

*Адрес для переписки: tokmakova.jul@yandex.ru

Аннотация

Актуальность. Методический потенциал оценочной корректирующей обратной связи от средств генеративного искусственного интеллекта (ИИ) начинает использоваться педагогами при обучении учащихся и студентов письменному иноязычному высказыванию. Вместе с тем использование внеаудиторной практики студентов неязыкового вуза с инструментами ИИ с целью получения корректирующей обратной связи в предметно-языковом интегрированном обучении профессиональному иностранному языку отдельно не изучалось. Цель исследования — разработка этапов методики использования корректирующей обратной связи от генеративного ИИ в обучении профессиональному иностранному языку, проведение экспериментального обучения и эмпирическая проверка эффективности данной методики.

Материалы и методы. В исследовании приняли участие студенты направления подготовки «Ветеринария» ФГБОУ ВО «Воронежский государственный аграрный университет имени императора Петра I. Студенты контрольной группы (N=43) участвовали в предметноязыковом интегрированном обучении без использования средств генеративного ИИ. Студенты экспериментальной группы (N=43) раз в неделю участвовали во внеаудиторной работе с нейросетью DeepSeek с целью получения оценочной корректирующей обратной связи при выполнении интегрированных заданий. В ходе эксперимента контролировались три аспекта: а) лексическая сторона речи; б) грамматическая сторона речи; в) профессиональное содержание высказывания. Для статистического анализа данных использовался t-критерий Стьюдента.

Результаты исследования. Исследование доказало эффективность методики использования оценочной корректирующей обратной связи от генеративного ИИ в предметноязыковом интегрированном обучении по всем контролируемым аспектам: а) лексической стороне речи (t=5,24 при $p\leq0,05$); б) грамматической стороне речи (t=4,74 при $p\leq0,05$); в) профессиональному содержанию высказывания (t=6,04 при $p\leq0,05$).

Выводы. В ходе исследования была разработана поэтапная методика использования оценочной корректирующей обратной связи от генеративного ИИ в предметно-языковом интегрированном обучении. Перспективность настоящего исследования заключается в использовании подхода по интеграции практики студентов с профессионально ориентированными инструментами ИИ в предметно-языковое обучение студентов неязыкового вуза.

Ключевые слова: искусственный интеллект, предметно-языковое интегрированное обучение, интегрированные задания, профессиональный иностранный язык, нейросеть DeepSeek **Финансирование.** Отсутствует.

Вклад авторов: Ю.В. Токмакова – разработка концепции исследования, разработка методологии, научное руководство, написание черновика рукописи, редактирование текста рукописи. Е.С. Саенко – обзор научной литературы, проведение исследования, обработка статистических данных.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

Для цитирования: *Токмакова Ю.В., Саенко Е.С.* Использование корректирующей обратной связи от генеративного искусственного интеллекта в обучении профессиональному иностранному языку студентов аграрного вуза // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2025. Т. 30. № 1. С. 50-66. https://doi.org/10.20310/1810-0201-2025-30-1-50-66

INTRODUCTION

In recent years, the integrated approach or content and language integrated learning has become widespread in the field of teaching professional foreign language and subject-specific disciplines to non-linguistic universities students. Its founder is considered to be the Finnish pedagogue David Marsh [1]. The distinctive characteristic of this approach, which is relatively new for the Russian practice, is the dual orientation of learning. On the one hand, students learn a foreign language in the sphere of professional communication and form professional foreign language communicative competence. On the other hand, the subject-mathematic content of the course is paired with profile disciplines. In the course of studying the integrated course, students also continue to form professional competences.

According to D. Marsh [1] and D. Coyle [2] the results of content and language integrated learning can be achieved if the following pedagogical conditions are met: a) students master the professional content in the language they study; b) the foreign language is the goal of learning; c) the foreign language is the tool for mastering the professional content; d) language teaching is integrated into the teaching of the

professional discipline; e) the advantage is given to the unfolding of a speech utterance in a foreign language.

Researchers from different countries have studied the aspects of using content and language integrated learning. An analysis of recent studies shows that the authors have studied the following issues. R. Milla and M. Lorenzo [3] discussed the influence of the integrated approach on the development of students' oral speech skills, E. Luckaberx and F. Gallardo-del-Puerto [4] – the method of forming students' pronunciation skills on professionally orientated material, M. Jafarigohar, H. Divsar, R. Eta-mad [5] tasks for the formation of students' lexical skills of speech, K. Lucas [6] – the method of teaching reading and writing through the study of profesoriented material, P.V. sionally Sysoyev and A.S. Belousov [7] - the method of career guidance training of students of profile classes of secondary schools and secondary vocational education institutions on the basis of studprofessionally oriented material, Yu.V. Tokmakova [8], A.K. Solomatina [9] and T.V. Baidikova [10] – subject content of training students of different areas of training and specialities of agrarian university.

Specifying the method of content and language integrated learning, P.V. Sysoyev and V.V. Zavyalov [11] argue that two elements of this approach are central: a) subject content of learning and b) learning technology. The subject content of an integrated course should either contain thematic modules related to different major disciplines of students or represent the content of a specific and holistic major discipline. The teaching technology of the integrated course should contain tasks, when performing which students will perform the same communicative-cognitive functions that they would realise in their professional activity. Such tasks can be integrated tasks or mini-cases [8].

Integration of artificial intelligence (AI) technologies into the teaching method at the university allowed to intensify the process of forming aspects of foreign language communicative competence and professional competences of students. Corrective evaluative feedback from generative AI can be used by students in extracurricular time when doing homework in order to improve the mastery of educational material. At the same time, despite the existence of research devoted to the study of the language didactic potential of corrective feedback from generative AI in the preparation of students' written creative works [12; 13], the use of extracurricular practice of non-English majors students with AI tools in order to obtain corrective feedback in content and language integrated learning of professional foreign language has not been studied separately.

Goal of the work: to develop stages of a method for using corrective feedback from generative AI in professional foreign language teaching.

Achievement of the goal includes the following objectives:

- to develop stages of the method of using corrective evaluative feedback from generative AI in teaching a professional foreign language to students of a non-English majors;
- to develop the thematic content of the integrated course and a set of professionally oriented integrated tasks;
- to carry out experimental and experimental verification of the effectiveness of the proposed teaching method.

LITERATURE REVIEW

Generative AI, depending on specific tools and requests, is able to provide users with different types of feedback. P.V. Sysoyev, E.M. Filatov and D.O. Sorokin [14] proposed a typology of feedback from generative AI as a result of analysing feedback from a number of AI tools. The scientists identified six types of feedback: a) educational and social; b) information and reference; c) methodical; d) analytical; e) conditionally creative and f) evaluative. In the context of this study, the evaluative type of feedback from AI is of particular interest.

It should be noted that evaluative feedback has been used in education for quite a long time. The first automated control tools appeared in the 1960s-1970s. In many respects they were not perfect and were able to quickly check tests with multiple choice tasks. Later, programmes and web-applications began to appear, capable of evaluating students' written creative work according to a number of criteria. At present, a number of AI-based web applications are widely used in the world, capable of evaluating students' written creative works by a number of criteria: a) lexis; b) grammar; c) structure of the work; d) content of the work, etc. The following criteria are widely used in the world: a) lexis; b) grammar; c) structure of the work; d) content of the work, etc. A large corpus of methodological works appeared in scientific literature, in which domestic and foreign scientists studied and described didactic possibilities of generative AI tools in providing students and pupils with evaluative feedback when teaching essay writing. In particular, A. Mizumoto and M. Yeguchi [15], A. Mizumoto, N. Shintani, M. Sasaki, and M. Teng [16], A. Pak, A. Barrett, J. Teng [16], and A. Park, A. Barrett, and J. Yeguchi considered the didactic capabilities of generative AI tools in providing students and learners with evaluative feedback in essay writing. Escalante [17] examined the reliability and validity of automated essay evaluation by neural networks and web-based applications; A. Saini, B. Cope, M. Kalantzis, G. Zapata and Z. Jiang, Z. Hu, Z. Pan, J. He. K. Hee [19] proposed methodological techniques and highlighted the stages of teaching students writing using evaluative feedback from AI tools. A number of works are devoted to the study of the linguodidactic potential of specific web applications functioning on the basis of AI technologies. K. Jayavalan and A. Razali [20], J. Park [21] and A. Perdana and M. Farid [22] – described the capabilities of the Grammarly web application in assessing students' written creative work; D. Wang and M. Brown [23], M. Zhanga [24] - investigated the reliability of evaluative feedback from the application; A.A. Pribytkova, PaperRater T.Yu. Tormysheva, O.N. Khaustov [25] - described the experience of introducing the Criterion web application into the process of teaching English-major students to write essays in English; A.A. Korenev [12] – described the experience of introducing the Criterion web application into the process of teaching students to write essays in English. A. Korenev [12] and P.V. Sysoyev and E.M. Filatov [13] – proposed stages of methods of teaching students to write creative papers using evaluative corrective feedback from generative AI; P.V. Sysovev, E.M. Filatov, N.I. Khmarenko, S.S. Murunov [26] conducted a study comparing the quality of the provided evaluative feedback from the ChatGPT neural network and teachers.

The study of these and other studies shows that currently web applications Grammarly, PaperRater, Criterion, neural network ChatGPT and others are able to provide students with assessment feedback of high quality. An important condition for getting quality feedback is proper prompt engineering – the proper design of queries to the generative AI. In order for the used AI tool to give evaluative feedback according to the necessary evaluation criteria, these criteria must be necessarily laid down in the prompt. Otherwise, the AI will use other evaluation criteria it finds in the database in its work.

Another important point that should be taken into account when developing the method of foreign language teaching with the use of AI is related to the sequence of stages and tasks. P.V. Sysoyev and E.M. Filatov [13] argue that students' practice with the AI tool should be-

come part of the traditional teaching method. Students learn new material using traditional methods and techniques, and use AI tools to practice it. The researchers focused on a method of teaching students creative writing (essays) using corrective feedback from the ChatGPT neural network. After learning the structural components of an essay during regular classes, students were given the task of writing an essay on a given topic as homework. After writing the essay, they were required to upload it to the ChatGPT neural network in order to receive corrective feedback, which they used to refine the essay. In the next class session, the students were divided into small groups of 3–4 students. They were asked to show their classmates different versions of the essay (original and revised) and the neural network's recommendations for revising the essay.

In our study, we propose the following stages of using corrective evaluative feedback from generative AI in teaching professional foreign language to non-English majors students. The focus will be on written monological speech.

Stage one. In accordance with the traditional teaching method, students of non-English majors study new vocabulary, grammatical structures, perform training and communicative exercises and tasks.

Stage Two. During extracurricular time students perform integrated tasks.

The task has a professional orientation and is performed in a foreign language.

Stage Three. Students load the completed integrative task and the corresponding prompt into the generative AI tool in order to receive evaluative corrective feedback from the generative AI.

Stage Four. Students receive evaluative feedback from the AI tool, review it, and make the changes they agree with to the original version of the paper.

Stage Five. In a face-to-face classroom session, students discuss their experience with generative AI in using evaluative corrective feedback from the AI on their homework assignment, showing what changes they made and

what recommendations from the AI they disagreed with.

Depending on the level of foreign language proficiency and general level of students' competence in the professional sphere, the third and fourth stages can be repeated several times during students' extracurricular practice with AI.

MATERIALS AND METHODS

The effectiveness of the step-by-step method of teaching students of non-English majors a professional foreign language based on the use of corrective evaluative feedback from generative AI was tested in the course of experimental training. Its participants were the students of training direction 36.05.01 "Veterinary Medicine" of Voronezh State Agrarian University named after Emperor Peter the Great. The study was conducted in the 2024–2025 academic year. The participants of the experiment were proficient in a foreign language at the level B1. The study consisted of three stages.

The initial level of foreign language and profile discipline proficiency of students of the control (CG) (N = 43) and experimental (EG) (N = 43) groups was determined **at the establishing stage**. The control instrument was a test consisting of two integrative tasks. The control aspects were: a) lexis; b) grammar; c) professional content of the statement. Each of the aspects was controlled separately on a five-point scale.

The formative stage of the experiment included training of CG and EG students according to the traditional method of content and language integrated learning using the manual: Saenko E.S., Solomatina A.G. "English for Veterinary Medicine 2: Textbook for Students in All Areas of the Faculty of Veterinary Medicine and Animal Husbandry Technology. Voronezh, Voronezh State Agrarian University named after Emperor Peter the Great Publ.", 2017. – 110 p. In addition, the students used teaching materials prepared by the instructor and integrated tasks. In addition, EG students interacted with the generative AI tool - DeepSeek neural network once a week when performing integrated tasks. Table 1 presents the subject-thematic content of the professional foreign language course for students of "Veterinary Medicine" and examples of integrated tasks aimed at the formation of professional foreign language communicative and professional competences of students

At the control stage, students of both groups (CG and EG) performed a test consisting of integrative tasks.

RESEARCH RESULTS

The data obtained in the course of testing at the test and control stages were analysed using Student's t-criterion technique based on IBM SPSS Statistics 21 software. The results are presented in Tables 2-4.

The results of the control test, presented in Table 2, show that before participating in the experimental training, CG and EG students possessed all the aspects controlled during the study at an equal level: a) lexical aspect of speech (t = 1.77 at p > 0.05); b) grammatical aspect of speech (t = 0.70 at p > 0.05); c) professional content of the statement (t = 1.43 at p > 0.05).

The data showing the effectiveness of both methods – traditional and innovative – are presented in Table 3.

The materials in Table 3 show that both teaching methods – traditional content and language integrated learning instruction and the innovative method using practice with generative AI – were effective. For all three aspects of control in CG and EG $p \le 0.05$.

The presence or absence of advantages of the innovative method is revealed by comparing the data of the experimental cut-off in CG and EG (Table 4).

The materials in Table 4 prove that the innovative method of content and language integrated learning with the use of out-of-classroom practice of students of agrarian university with DeepSeek neural network was more effective in comparison with the traditional approach.

DISCUSSION OF RESULTS

Experimental training proved the effectiveness of the author's step-by-step method of content and language integrated learning of students of "Veterinary" training direction in comparison with the traditional method of content and language integrated learning in all three aspects of control (a) lexical side of speech (t = 5.24 at $p \le 0.05$); b) grammatical side of speech (t = 4.74 at t = 0.05); c) professional content of utterance (t = 6.04 at t = 0.05).

The AI tool, the DeepSeek neural network, has proven to be effective when used in content and language integrated learning. As an illustra-

tion of students' interaction with the DeepSeek neural network, Fig. 1–4 shows evaluative corrective feedback from generative AI.

Examples (Fig. 1–4) prove that nowadays generative AI can be used as an additional tool in the process of students' mastering of educational material. Neural networks functioning on the basis of English Big Language Models (BLM) are able to provide evaluative and corrective feedback regarding the linguistic content of an utterance (lexical and grammatical aspects of speech). The neural network recommends students to use specific lexical units of the professional thesaurus to achieve linguistic authenticity of the utterance.

Table 1 Content of the integrated course for students Veterinary Medicine

Course topic	Examples of integrated communicative tasks	
Haematology	A dog with a deep bleeding wound in the thigh area was admitted to a veterinary clinic. As a result of a clinical examination, lethargy, difficulty breathing, rapid pulse, paleness of the oral mucosa, in particular the gums, were revealed, which indicated profuse blood loss. A blood test showed a decrease in the content of erythrocytes, hemoglobin, and the appearance of polychromatophils, reticulocytes, and oxyphilic normocytes was also noted. Define the type of anemia in this situation	
General principles of surgical treatment of the dentoalveolar system in animals.	The dog has a clinical picture of ulcerative inflammation of the gums and alveolar periositis. The gums are reddened and ulcerated, there is an unpleasant odour from the oral cavity, salivation and difficulty chewing. Make a diagnosis. Prescribe treatment.	
Traumatology	A cat was admitted to a veterinary clinic with a suspected fracture of the left paw after falling from a height. The cat has pronounced lameness and soft tissue edema. In this area, the cat's skin has a bluish tint. Plan an algorithm of actions for the diagnosis and treatment of this animal	
Basics of nutrition for healthy and sickanimals.	Determine the energy and nutrient requirements of an adult dog at rest, weighing 15 kg, with the underlying disease being chronic gastritis with secretory insufficiency. Make a nutrition plan	
Dermatology. General therapy of skin diseases.		
Ophthalmology	While examining the dog's eyes, a skin formation with the size of a pinhead was found on the cornea. Long, thick hairs grow on this formation. They interfere with vision and lead to conjunctivitis. Make a diagnosis and determine your actions in this situation	

Source: compiled by the authors.

Table 2 The results of the control cut-off in the control and experimental groups

Control aspect	CG average (\bar{x})	EG average (\bar{x})	Student's t-test	<i>p</i> -value
Lexical aspect of speech	2.88	2.93	1.77	0.07*
Grammatical aspect of speech	3.00	3.04	0.70	0.24*
Professional content of the statement	2.74	2.79	1.43	0.07*

Note: * -p > 0.05.

Source: calculated and compiled by the authors.

 ${\bf Table~3}$ Results of comparison of the data of the control and experimental slices in CG and EG

	Control group (CG)		Experimental group (EG)		
Control aspect	<i>t</i> -criterion Student's t-test	<i>p</i> -value	t-criterion Student's t-test	<i>p</i> -value	
Lexical aspect of speech	24.38	0.0001**	18.81	0.0001**	
Grammatical aspect of speech	17.44	0.0001**	18.39	0.0001**	
Professional content of thestatement	18.48	0.0001**	23.95	0.0001**	

Note: ** $- p \le 0.05$.

Source: calculated and compiled by the authors.

Table 4
The results of the experimental cut-off in the control and experimental groups

Control aspect	CG average (\bar{x})	EG average (\bar{x})	Student's t-test	<i>p</i> -value
Lexical aspect ofspeech	3.97	4.37	5.24	0.0001**
Grammatical aspect of speech	4.06	4.41	4.74	0.0001**
Professional content of the statement	4.02	4.48	6.04	0.0001**

Note: ** $-p \le 0.05$.

Source: calculated and compiled by the authors.

One of the controversial points related to the neural network's provision of evaluative corrective feedback is its ability to evaluate the professional content of an utterance. The responses of the DeepSeek neural network to queries regarding content evaluation show that the generative AI is able not only to evaluate the content of the work, but also to offer recommendations for re-

fining the content of the utterance. The obtained results fully correlate with the results of the study by P.V. Sysoyev, E.M. Filatov, N.I. Khmarenko and S.S. Murunov [26] on evaluating the ability of generative AI to provide qualitative evaluative corrective feedback when checking essays in English. The ChatGPT neural network was used as an evaluation tool.

Despite the positive results obtained, we consider it necessary to draw the readers' attention to one important point related to the use of generative AI tools by students. It is necessary for students to bring printed versions of all electronic documents that record and confirm their training practice with the AI tool (initial version of the written work, request to the generative AI,

evaluative corrective feedback from the AI tool, final version of the work) to the classroom session that will follow the students' practice with neural networks. Otherwise, students bring to class only one version of the completed integrated assignment, the authorship of which cannot be proven.

Тебе необходимо проверить работу, которую сделал студент. Задание звучало следующим образом: A dog was admitted to a veterinary clinic. It has isolated skin lesions on its head and neck, and itching is pronounced. In the affected areas, the skin is inflamed, with blisters and peeling crusts. When pressed, pus is released. All this has been going on for more than a month. Plan an algorithm of actions for diagnosing and treating this animal. Студент выполнил это задание так: Diagnostics:

Differential diagnosis based on anamnesis data: pyoderma, demodicosis, sarcoptosis.

- 1.Conduct a bacteriological examination of scrapings from the affected area of the skin.
- 2. Take smears-prints, stain them and conduct a cytological examination under a microscope.
- Conduct a trichoscopy, a cytological examination of the contents of the bubbles, a general blood test with a leukogram.
- 4.To exclude dermatophytosis, LUM diagnostics using a Wood's lamp, microscopy of wool and taking material from the skin for additional diagnostics in the laboratory are mandatory.
- 5. In some cases, a skin biopsy is necessary to make a diagnosis.

Treatment:

- Cleansing the affected areas from crusts and accumulated exudate with chlorhexidine daily until complete recovery
- 2. Eprimec 0.2 ml per 10 kg of body weight intramuscularly once
- 3. Advocate drops once by drip application to the skin
- 4. Amoxicillin 1 ml/kg intramuscularly twice with an interval of 48 hours
- 5. E-selenium 0.04 ml/kg intramuscularly once every 7 days twice.
- 6. A hypoallergenic diet to exclude food allergies.

Проверь правильность выполненного задания на предмет правильного использования английского языка (соответствует ли употребляемая лексика и грамматика уровню владения иностранным языком В1-В2), а также на содержательную часть. Все ли этапы описаны верно? Нужно ли добавить что-то ещё?

Fig. 1. DeepSeek neural network request for evaluation and provision of corrective feedback

Comprehensive Review of the Student's Assignment

1. Language Assessment (B1-B2 Level)

The student demonstrates solid B2-level proficiency with mostly accurate terminology, though some phrasing could be more natural for veterinary contexts. Here's the detailed analysis:

Diagnostics Section:

Original Text Issues:

- 1. "Differential diagnosis based on anamnesis data" → "Anamnesis" is correct but uncommon in English (better: "Based on medical history").
- 2. "Take smears-prints" → Unnatural phrasing (better: "Take impression smears").
- "LUM diagnostics" → Incorrect abbreviation (should be "Wood's lamp examination").
- 4. "Taking material from the skin for additional diagnostics" → Awkward (better: "Collect skin samples for culture").

Improved Version (B2-level):

- 1. "Consider differential diagnoses: pyoderma, demodicosis, sarcoptic mange."
- 2. "Perform bacterial culture from skin scrapings."
- 3. "Prepare and examine impression smears cytologically."
- 4. "Conduct trichoscopy and vesicle cytology; include CBC with leukogram."
- 5. "Rule out dermatophytosis via Wood's lamp exam and fungal culture."
- 6. "Consider skin biopsy if diagnosis remains unclear."

Treatment Section:

Original Text Issues:

- 1. "Eprimec 0.2 ml per 10 kg" → Missing drug class (specify: "Ivermectin (Eprimec) 0.2 ml/10 kg IM once").
- "Advocate drops once by drip application" → Unclear (better: "Apply Advocate® (imidacloprid/moxidectin) spot-on once").
- 3. "Amoxicillin 1 ml/kg... twice with an interval of 48 hours" → Confusing dosage (clarify: "Amoxicillin 15 mg/kg IM q48h for 2 doses").

Improved Version (B2-level):

- 1. "Clean lesions daily with chlorhexidine until healed."
- 2. "Administer ivermectin (0.2 ml/10 kg IM once) for parasitic causes."
- 3. "Apply Advocate® spot-on for ectoparasites."
- 4. "Prescribe amoxicillin (15 mg/kg IM q48h) for secondary infection."
- 5. "Give vitamin E/selenium (0.04 ml/kg IM weekly x2) for skin repair."
- 6. "Implement a hypoallergenic diet trial for 8-12 weeks."

Fig. 2. Estimated corrective feedback from the DeepSeek neural network. Comprehensive review on the student's assignment

2. Content Accuracy Assessment

The student covered key diagnostic steps but missed some critical elements:

Missing/Problematic Content:

1 Diagnostics:

- No mention of skin scrapings for Demodex/Sarcoptes (essential for parasitic diagnosis).
- Fungal culture (not just Wood's lamp) needed for dermatophytosis.
- Allergy testing (intradermal/serologic) should be considered for chronic cases.

2. Treatment:

- Pain management omitted (e.g., NSAIDs for inflammation).
- Antifungals (e.g., ketoconazole) if fungal infection confirmed.
- Dosage errors: Amoxicillin dosage unclear (should specify mg/kg, not ml/kg).
- Follow-up: No plan for rechecking (e.g., "Re-evaluate after 14 days").

Strengths:

- · Correct differential diagnoses.
- Appropriate use of cytology, Wood's lamp, and biopsy.
- Logical treatment sequence (cleaning → parasiticides → antibiotics).

Final Evaluation & Recommendations

Aspect	Score (10)	Feedback
Language (B1-B2)	8	Mostly accurate but some awkward phrasing.
Content	7	Missing allergy testing, pain management, and follow-up

Suggestions for Improvement:

1. Diagnostics:

- Add "Perform deep skin scrapings for Demodex/Sarcoptes."
- Specify "Submit fungal culture if Wood's lamp is negative."

2. Treatment:

- Include "Carprofen (2 mg/kg PO q24h) for pain/inflammation."
- Clarify drug dosages in mg/kg (not ml/kg).

3. Follow-up:

Add "Schedule recheck in 2 weeks to assess response."

Fig. 3. Estimated corrective feedback from the DeepSeek neural network. Content accuracy assessment

Final Revised Version (B2-Level English)

Diagnostics:

1. Initial Workup:

- Record detailed dietary/environmental history.
- Perform physical exam focusing on lesion distribution.

2. Laboratory Tests:

- Skin scrapings (deep/superficial) for Demodex/Sarcoptes.
- Impression smears for cytology (check for bacteria/yeast).
- Fungal culture (even if Wood's lamp negative).
- CBC/biochemistry to assess systemic involvement.

3. Advanced Diagnostics:

- Intradermal allergy testing if atopy suspected.
- Skin biopsy for refractory cases.

Treatment:

1. Topical Therapy:

- Clean lesions BID with chlorhexidine 2%.
- Apply mupirocin ointment to infected areas.

2. Systemic Medications:

- Antibiotics: Cefovecin (8 mg/kg SC once) or amoxicillin-clavulanate (15 mg/kg PO q12h).
- Antiparasitics: Ivermectin (0.3 mg/kg SC weekly x4) for Demodex.
- Antifungals: Ketoconazole (5 mg/kg PO q24h) if fungal infection confirmed.

3. Supportive Care:

- Omega-3 supplements (EPA/DHA 50 mg/kg/day) to reduce inflammation.
- Strict hypoallergenic diet (hydrolyzed protein for 8+ weeks).

Follow-Up:

- Recheck at 14 days for cytology/scrapings.
- · Adjust treatment based on culture results.

This version is **clinically precise** and **linguistically polished** for a B2-level learner. Let me know if you'd like further refinements!



Fig. 4. Estimated corrective feedback from the Deep Seek neural network. Final revised version (B2-level English)

It is important that during the class discussion phase of the results of the evaluative corrective feedback from the generative AI, students are able to show and explain which recommendations of the neural network they followed and which they did not, and why. This will encourage them to develop critical thinking and a more meaningful attitude towards the AI recommendations.

CONCLUSION

In the course of the conducted research the effectiveness of the author's method of content

and language integrated learning of professional foreign language and profile speciality on the basis of evaluative corrective feedback from the means of generative AI was proved. The EG students mastered lexis and grammatical aspects of speech, as well as professional content more efficiently in comparison with the students using the traditional method.

The prospect of the present study is to use an approach to integrate students' practice with professionally oriented AI tools into the subjectlanguage instruction of non-English majors students.

References

- 1. Marsh D. (1994). *Bilingual Education and Content and Language Integrated Learning*. Paris, International Association for Cross-cultural Communication, Language Teaching in the Member State of the European Union (Lingua), University of Sorbonne.
- 2. Coyle D. (2015). Meaning-making, language learning and language using: an integrated approach. Inclusive pedagogy across the curriculum. *International Perspectives on Inclusive Education*, vol. 7, pp. 235-258. https://doi.org/10.1108/S1479-363620150000007021
- 3. Milla R., de Pilar Garcia Mayo M. (2021). Teachers' oral corrective feedback and learners' uptake in high school CLIL and EFL classrooms. *Vigo International Journal of Applied Linguistics*, vol. 18, pp. 149-176. http://doi.org/10.35869/vial.v0i18.3368, https://elibrary.ru/nnuiwj
- 4. Lacabex E.G., Gallardo-Del-Puerto F. (2020). Explicit phonetic instruction vs. implicit attention to native exposure: phonological awareness of English schwa in CLIL. *IRAL International Review of Applied Linguistics in Language Teaching*, vol. 58, no. 4, pp. 419-442. http://doi.org/10.1515/iral-2017-0079
- 5. Jafarigohar M., Divsar H., Etemad P. (2022). The effect of CLIL context on the primary education EFL receptive and productive lexical growth. *Language Teaching Research*, vol. 3, issue 3, pp. 1114-1138. https://doi.org/10.1177/13621688221078997, https://elibrary.ru/ratysp
- 6. Lucas C. (2020). The reading and writing connections in developing overall L2 literacy: a case study. *Languages*, vol. 5, no. 4, pp. 1-25. http://doi.org/10.3390/languages5040069, https://elibrary.ru/yabpte
- 7. Sysoyev P.V., Belousov A.S. (2022). Development of career-oriented foreign language teaching for humanities students based on content and language integrated learning. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, no. 5 (59), pp. 247-263. (In Russ.) http://doi.org/10.32744/pse.2022.5.15, https://elibrary.ru/dklnvn
- 8. Sysoyev P.V., Tokmakova Yu.V. (2022). Teaching agricultural university students professional foreign language and a specialized major via an integrated course. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, no. 1 (55), pp. 221-235. (In Russ.) http://doi.org/10.32744/pse.2022.1.14, https://elibrary.ru/edzmxp
- 9. Solomatina A.G. (2018). Teaching a foreign language for professional purposes course on the basis of the model of content and language integrated learning in an agricultural institution. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 23, no. 173, pp. 49-57. (In Russ.) http://doi.org/10.20310/1810-0201-2018-23-173-49-57, https://elibrary.ru/wcquqh
- 10. Baidikova T.V. (2020). Subject content of foreign language teaching in the professional sphere of students of "Agricultural engineering" programme based on content and language integrated learning. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 25, no. 184, pp. 65-74. (In Russ.) http://doi.org/10.20310/1810-0201-2019-25-184-65-74, https://elibrary.ru/vupcfh

- 11. Sysoyev P.V., Zavyalov V.V. (2019). Teaching English as a foreign language to law students based on content and language integrated learning approach. *Advances in Intelligent Systems and Computing*, no. 907, pp. 237-244. http://doi.org/10.1007/978-3-030-11473-2_26, https://elibrary.ru/yvgump
- 12. Korenev A.A. (2024). Strategies of using artificial intelligence for written corrective feedback in language education. *Vestnik Moskovskogo universiteta. Seriya 19: Lingvistika i mezhkul'turnaya kommunikatsiya = Moscow State University Bulletin. Series 19. Linguistics and Intercultural Communication*, vol. 27, no. 2, pp. 68-77. (In Russ.) http://doi.org/10.55959/MSU-2074-1588-19-27-2-5, https://elibrary.ru/hizddu
- 13. Sysoyev P.V., Filatov E.M. (2024). Method of teaching students' foreign language creative writing based on evaluative feedback from artificial intelligence. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, no. 1 (67), pp. 115-135. (In Russ.) https://doi.org/10.32744/pse.2024.1.6, https://elibrary.ru/tmstly
- 14. Sysoyev P.V., Filatov E.M., Sorokin D.O. (2024). Feedback in foreign language teaching: from information technologies to artificial intelligence. *Yazyk i kul'tura = Language and Culture*, no. 65, pp. 242-261. (In Russ.) http://doi.org/10.17223/19996195/65/11, https://elibrary.ru/plzyov
- 15. Mizumoto A., Eguchi M. (2023). Exploring the potential of using an AI language model for automated essay scoring. *Research Methods in Applied Linguistics*, vol. 2, no. 2, art. 100050. https://doi.org/10.1016/j.rmal.2023.100050, https://elibrary.ru/eiqwqr
- 16. Mizumoto A., Shintani N., Sasaki M., Feng Teng M. (2024). Testing the viability of ChatGPT as a companion in L2 writing accuracy assessment. *Research Methods in Applied Linguistics*, vol. 3, no. 2, art. 100116. https://doi.org/10.1016/j.rmal.2024.100116, https://elibrary.ru/eyelvk
- 17. Pack A., Barrett A., Escalante J. (2024). Large language models and automated essay scoring of English language learner writing: Insights into validity and reliability. *Computers and Education: Artificial Intelligence*, vol. 6, art. 100234. https://doi.org/10.1016/j.caeai.2024.100234, https://elibrary.ru/tzakon
- 18. Saini A.K., Cope B., Kalantzis M., Zapata G.C. (2024). The future of feedback: integrating peer and generative AI reviews to support student work. *EdArXiv preprint*, pp. 1-57. https://doi.org/10.35542/osf.io/x3dct
- 19. Jiang Z., Xu Z., Pan Z., He J., Xie K. (2023). Exploring the role of artificial intelligence in facilitating assessment of writing performance in second language learning. *Languages*, vol. 8, no. 4, art. 247. http://doi.org/10.3390/languages8040247
- 20. Jayavalan K., Razali A.B. (2018). Effectiveness of online grammar checker to improve secondary students' English narrative essay writing. *International Research Journal of Education and Sciences*, vol. 2, no. 1, pp. 1-6.
- 21. Park J. (2019). An AI-based English grammar checker vs. human raters in evaluating EFL learners' writing. Multimedia-Assisted Language Learning, vol. 22, no. 1, pp. 112-131. https://doi.org/10.15702/mall.2019.22.1.112
- 22. Perdana I., Farida M. (2019). Online grammar checkers and their use for EFL writing. *Journal of English Teaching*, *Applied Linguistics*, *and Literatures*, vol. 2, no. 2, pp. 67-76. https://doi.org/10.20527/jetall.v2i2.7332
- 23. Wang J., Brown M.S. (2007). Automated essay scoring versus human scoring: a comparative study. *Journal of Technology, Learning, and Assessment*, vol. 6, no. 2, pp. 1-29.
- 24. Zhang M. (2013). Contrasting automated and human scoring of essays. R&D Connections, vol. 21, pp. 1-11.
- 25. Pribytkova A.A., Tormyshova T.Yu., Khaustov O.N. (2024). The use of the criterion automated assessment system in teaching students of language specialties to write essays in a foreign language: the results of an experimental test. *Vestnik Tambovskogo universiteta. Seriya: Gumanitarnye nauki = Tambov University Review. Series: Humanities*, vol. 29, no. 2, pp. 378-389. (In Russ.) https://doi.org/10.20310/1810-0201-2024-29-2-378-389, https://elibrary.ru/aocibl
- 26. Sysoyev P.V., Filatov E.M., Khmarenko N.I., Murunov S.S. (2024). Teacher vs artificial intelligence: a comparison of the quality of feedback provided by a teacher and generative artificial intelligence in assessing students' creative writing. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, no. 5 (71), pp. 694-712. (In Russ.) http://doi.org/10.32744/pse.2024.5.41, https://elibrary.ru/xzgvgm

Список источников

- 1. *Marsh D.* Bilingual Education and Content and Language Integrated Learning. Paris: International Association for Cross-cultural Communication, Language Teaching in the Member State of the European Union (Lingua), University of Sorbonne, 1994.
- 2. *Coyle D.* Meaning-making, language learning and language using: an integrated approach. Inclusive pedagogy across the curriculum // International Perspectives on Inclusive Education. 2015. Vol. 7. P. 235-258. https://doi.org/10.1108/S1479-363620150000007021
- 3. *Milla R., de Pilar Garcia Mayo M.* Teachers' oral corrective feedback and learners' uptake in high school CLIL and EFL classrooms // Vigo International Journal of Applied Linguistics. 2021. Vol. 18. P. 149-176. http://doi.org/10.35869/vial.v0i18.3368, https://elibrary.ru/nnuiwj
- 4. *Lacabex E.G.*, *Gallardo-Del-Puerto F*. Explicit phonetic instruction vs. implicit attention to native exposure: phonological awareness of English schwa in CLIL // IRAL International Review of Applied Linguistics in Language Teaching. 2020. Vol. 58. № 4. P. 419-442. http://doi.org/10.1515/iral-2017-0079
- 5. *Jafarigohar M., Divsar H., Etemad P.* The effect of CLIL context on the primary education EFL receptive and productive lexical growth // Language Teaching Research. 2022. Vol. 3. Issue 3. P. 1114-1138. https://doi.org/10.1177/13621688221078997, https://elibrary.ru/ratysp
- 6. *Lucas C*. The reading and writing connections in developing overall L2 literacy: a case study // Languages. 2020. Vol. 5. № 4. P. 1-25. http://doi.org/10.3390/languages5040069, https://elibrary.ru/yabpte
- 7. *Сысоев П.В., Белоусов А.С.* Разработка методики профориентационного обучения иностранному языку обучающихся гуманитарного профильного класса на основе интегрированного подхода // Перспективы науки и образования. 2022. № 5 (59). С. 247-263. http://doi.org/10.32744/pse.2022.5.15, https://elibrary.ru/dklnvn
- 8. *Сысоев П.В., Токмакова Ю.В.* Разработка методики предметно-языкового интегрированного обучения студентов аграрного вуза // Перспективы науки и образования. 2022. № 1 (55). С. 221-235. http://doi.org/10.32744/pse.2022.1.14, https://elibrary.ru/edzmxp
- 9. *Соломатина А.Г.* Обучение иностранному языку для профессиональных целей на основе модели интегрированного предметно-языкового обучения в аграрном вузе // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2018. Т. 23. № 173. С. 49-57. http://doi.org/10.20310/1810-0201-2018-23-173-49-57, https://elibrary.ru/wcquqh
- 10. *Байдикова Т.В.* Предметное содержание обучения иностранному языку в профессиональной сфере студентов направления подготовки «Агроинженерия» на основе интегрированного предметноязыкового обучения // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2020. Т. 25. № 184. С. 65-74. http://doi.org/10.20310/1810-0201-2019-25-184-65-74, https://elibrary.ru/vupcfh
- 11. Sysoyev P.V., Zavyalov V.V. Teaching English as a foreign language to law students based on content and language integrated learning approach // Advances in Intelligent Systems and Computing. 2019. № 907. P. 237-244. http://doi.org/10.1007/978-3-030-11473-2_26, https://elibrary.ru/yvgump
- 12. Коренев А.А. Стратегии использования искусственного интеллекта для предоставления письменной обратной связи в обучении иностранному языку // Вестник Московского университета. Серия 19: Лингвистика и межкультурная коммуникация. 2024. Т. 27. № 2. С. 68-77. http://doi.org/10.55959/MSU-2074-1588-19-27-2-5, https://elibrary.ru/hizddu
- 13. *Сысоев П.В.*, *Филатов Е.М.* Методика обучения студентов написанию иноязычных творческих работ на основе оценочной обратной связи от искусственного интеллекта // Перспективы науки и образования. 2024. № 1 (67). С. 115-135. https://doi.org/10.32744/pse.2024.1.6, https://elibrary.ru/tmstly
- 14. *Сысоев П.В.*, *Филатов Е.М.*, *Сорокин Д.О*. Обратная связь в обучении иностранному языку: от информационных технологий к искусственному интеллекту // Язык и культура. 2024. № 65. С. 242-261. http://doi.org/10.17223/19996195/65/11, https://elibrary.ru/plzyov
- 15. *Mizumoto A., Eguchi M.* Exploring the potential of using an AI language model for automated essay scoring // Research Methods in Applied Linguistics. 2023. Vol. 2. № 2. Art. 100050. https://doi.org/10.1016/j.rmal.2023.100050, https://elibrary.ru/eiqwqr
- 16. *Mizumoto A., Shintani N., Sasaki M., Feng Teng M.* Testing the viability of ChatGPT as a companion in L2 writing accuracy assessment // Research Methods in Applied Linguistics. 2024. Vol. 3. № 2. Art. 100116. https://doi.org/10.1016/j.rmal.2024.100116, https://elibrary.ru/eyelvk

- 17. *Pack A., Barrett A., Escalante J.* Large language models and automated essay scoring of English language learner writing: Insights into validity and reliability // Computers and Education: Artificial Intelligence. 2024. Vol. 6. Art. 100234. https://doi.org/10.1016/j.caeai.2024.100234, https://elibrary.ru/tzakon
- 18. Saini A.K., Cope B., Kalantzis M., Zapata G.C. The future of feedback: integrating peer and generative AI reviews to support student work // EdArXiv preprint. 2024. P. 1-57. https://doi.org/10.35542/osf.io/x3dct
- 19. *Jiang Z., Xu Z., Pan Z., He J., Xie K.* Exploring the role of artificial intelligence in facilitating assessment of writing performance in second language learning // Languages. 2023. Vol. 8. № 4. Art. 247. http://doi.org/10.3390/languages8040247
- 20. *Jayavalan K., Razali A.B.* Effectiveness of online grammar checker to improve secondary students' English narrative essay writing // International Research Journal of Education and Sciences. 2018. Vol. 2. № 1. P. 1-6.
- 21. Park J. An AI-based English grammar checker vs. human raters in evaluating EFL learners' writing // Multimedia-Assisted Language Learning. 2019. Vol. 22. № 1. P. 112-131. https://doi.org/10.15702/mall.2019.22.1.112
- 22. *Perdana I., Farida M.* Online grammar checkers and their use for EFL writing // Journal of English Teaching, Applied Linguistics, and Literatures. 2019. Vol. 2. № 2. P. 67-76. https://doi.org/10.20527/jetall.v2i2.7332
- 23. Wang J., Brown M.S. Automated essay scoring versus human scoring: a comparative study // Journal of Technology, Learning, and Assessment. 2007. Vol. 6. № 2. P. 1-29.
- 24. Zhang M. Contrasting automated and human scoring of essays // R&D Connections. 2013. Vol. 21. P. 1-11.
- 25. *Прибыткова А.А., Тормышова Т.Ю., Хаустов О.Н.* Использование системы автоматизированной оценки Criterion в обучении студентов языковых специальностей написанию эссе на иностранном языке: результаты экспериментальной проверки // Вестник Тамбовского университета. Серия: Гуманитарные науки. 2024. Т. 29. № 2. С. 378-389. https://doi.org/10.20310/1810-0201-2024-29-2-378-389, https://elibrary.ru/aocibl
- 26. *Сысоев П.В., Филатов Е.М., Хмаренко Н.И., Мурунов С.С.* Преподаватель vs искусственный интеллект: сравнение качества предоставляемой преподавателем и генеративным искусственным интеллектом обратной связи при оценке письменных творческих работ студентов // Перспективы науки и образования. 2024. № 5 (71). С. 694-712. http://doi.org/10.32744/pse.2024.5.41, https://elibrary.ru/xzgvgm

Information about the authors

Yuliya V. Tokmakova, Cand. Sci. (Education), Associate Professor of Russian and Foreign Languages Department, Voronezh State Agrarian University named after Emperor Peter the Great, Voronezh, Russian Federation.

http://orcid.org/0000-0001-8160-8816 tokmakova.jul@yandex.ru

Elena S. Saenko, Cand. Sci. (Education), Associate Professor of Russian and Foreign Languages Department, Voronezh State Agrarian University named after Emperor Peter the Great, Voronezh, Russian Federation.

http://orcid.org/0000-0003-3456-2784 tokmakova.jul@yandex.ru

Информация об авторах

Токмакова Юлия Валерьевна, кандидат педагогических наук, доцент кафедры русского и иностранных языков, Воронежский государственный аграрный университет им. императора Петра I, г. Воронеж, Российская Федерация.

http://orcid.org/0000-0001-8160-8816 tokmakova.jul@yandex.ru

Саенко Елена Сергеевна, кандидат педагогических наук, доцент кафедры русского и иностранных языков, Воронежский государственный аграрный университет им. императора Петра I, г. Воронеж, Российская Федерация.

http://orcid.org/0000-0003-3456-2784 lazer helen@mail.ru

Corresponding author:

Yuliya V. Tokmakova tokmakova.jul@yandex.ru

Received 07.11.2024 Approved 30.01.2025 Accepted 14.02.2025

The authors has read and approved the final manuscript.

Для контактов:

Токмакова Юлия Валерьевна tokmakova.jul@yandex.ru

Поступила в редакцию 07.11.2024 Одобрена после рецензирования 30.01.2025 Принята к публикации 14.02.2025

Авторы прочитали и одобрили окончательный вариант рукописи.