



Сотрудничество преподавателя и ИИ: разработка учебных материалов и языковая успеваемость в контексте ИТ-специальностей

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АННОТАЦИЯ

Введение. Настоящее исследование направлено на то, чтобы оценить, воспринимаются ли учебные материалы, созданные при поддержке ИИ и при участии преподавателя, как адекватные, а также их влияние на результаты обучения иностранному языку. Несмотря на значительное количество научных публикаций, посвящённых использованию ИИ-инструментов в обучении иностранным языкам, разработка таких материалов в рамках сотрудничества преподавателя иностранного языка и ИИ остаётся недостаточно изученной. Актуальность исследования связана с необходимостью выявить потенциал обучения, основанного на учебных материалах, разработанных в тандеме преподавателя и ИИ, для повышения языковой успеваемости.

Материалы и методы. В исследовании использовались педагогическое проектирование, анкетирование, экспериментальное обучение и методы описательной статистики. Эксперимент проводился в Тольяттинском государственном университете (Россия) в 2024–2025 гг. и охватывал 37 студентов ИТ-специальностей в экспериментальной группе и 37 студентов тех же специальностей в контрольной группе.

Результаты исследования. Была разработана пятишаговая модель сотрудничества преподавателя и ИИ. Подавляющее большинство участников опроса положительно оценили учебные материалы, созданные в тандеме преподавателя английского языка и ИИ и адаптированные к коммуникативным потребностям студентов ИТ-специальностей и требованиям ИТ-индустрии. Использование таких материалов значительно улучшило языковую успеваемость испытуемых, включая умения говорения, аудирования и лексико-грамматические умения, по сравнению с контрольной группой ($d = 0,86$; $p < 0,001$), тогда как в контрольной группе наблюдалось снижение результатов ($d = -0,65$; $p < 0,05$).

Заключение. Полученные результаты способствуют изучению взаимодействия преподавателя и ИИ на основе осознанной и ответственной интеграции технологий на основе ИИ в обучение иностранным языкам.

КЛЮЧЕВЫЕ СЛОВА

сценарий сотрудничества преподавателя и ИИ, учебные материалы, ИТ-специальности, экспериментальное обучение, языковая успеваемость

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Teacher–AI Collaboration: Materials Design and Language Performance in the Context of Tech Majors

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ABSTRACT

Introduction. The present study aims to evaluate whether AI-assisted, teacher-mediated materials are perceived as adequate and whether they are associated with improved learner outcomes. Despite numerous academic publications about the usage of AI tools in language education, the development of such materials through language teacher and AI collaboration remains underexplored. The motivation for the research comes from the need to examine the potential of instruction based on learning materials designed through teacher–AI collaboration for enhancing language skills performance.

Materials and methods. The research methods employed pedagogical design, a survey, experimental instruction, and descriptive statistics. The experiment was conducted during 2024–2025 and involved 37 students of tech majors in the experimental group and 37 students of the same tech majors in the control group from Togliatti State University (Russia).

Research results. A five-step scenario of teacher–AI collaboration was developed. The overwhelming majority of survey participants gave positive evaluations of learning materials developed in the English teacher–AI tandem and tailored to tech students' communicative needs and requirements of the tech industry. The use of such materials significantly improved tech students' language skills, including speaking, listening, and lexical-grammar skills, compared with the control group ($d = 0.86$; $p < 0.001$), whereas the control group showed a decline ($d = -0.65$; $p < 0.05$).

Conclusion. The current findings contribute to the studies of teacher and AI interaction based on the conscious and responsible integration of AI-based technologies in foreign language education.

KEYWORDS

scenario for teacher–AI collaboration, learning materials, tech majors, experimental instruction, language performance

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INTRODUCTION

Nowadays teacher-AI collaboration in education is one of the key challenges for educators all over the world. According to UNESCO's AI Competency Framework for Teachers one of the key competency areas is AI pedagogy. This competency involves effective integration of AI into pedagogical methodologies and strategies, from course preparation to assessment [1]. At the tertiary level, early research argued the necessity for further exploration of ethical and educational approaches in the application of AI [2].

As for language education, this field is undergoing significant transformation through AI-powered technologies, which offer teachers new possibilities for lesson planning, content creation, and process evaluation [3]. Recent studies highlight ChatGPT's potential to enhance language teaching practices and pedagogical awareness [4]. However, while AI applications in language education are increasingly studied [5], human-AI collaboration remains underexplored and requires greater conceptual precision [6]. Moreover, learner feedback on AI-generated materials in foreign language teaching has received limited attention [7]. As the literature review indicates, very little attention has been given to the development of learning materials for tech-major students at the tertiary level that would align to real workplace communication in the tech industry [8], e. g., sprint review meetings, stand-up meetings, client interactions, and business correspondence. While there exists a significant amount of research on implementing AI-powered tools in language education [5], there is a noticeable gap in exploring effective teacher-AI collaboration scenarios for developing learning materials at the tertiary level and evaluating the effectiveness of instruction based on these materials. Thus, this research is motivated by the need to examine the potential of instruction based on learning materials designed through teacher-AI collaboration for enhancing language skills performance. Consequently, the study aims:

- to examine how teacher-AI collaboration can support the design of learning materials tailored to tech students' communicative needs and requirements of the tech industry;
- to evaluate tech-major students' perceptions of the adequacy of these materials;
- to explore whether instruction using these materials is associated with gains in language performance.

The research questions are as follows:

RQ1: What prompt-based scenarios can guide teacher-AI collaboration in learning material design in the context of tech majors?

RQ2: How do tech-major students evaluate the adequacy and authenticity of the resulting materials?

RQ3: What changes in language performance are associated with the implementation of these materials?

THEORETICAL FRAMEWORK

The use of AI-powered tools has evoked a tremendous amount of research in language education. Up-to-date directions were singled out by P. V. Sysoyev who argues that recent scholarship adopts "anthropological approach that studies interactions between humans and digital technologies" [5, p. 673]. Singha et al. stress that "responsible incorporation of AI into teaching methodologies transforms them into a collaborative model" [9, p. 22]. Qualitative analysis has identified four ChatGPT roles – interlocutor, content provider, teaching assistant, and evaluator – and three corresponding teacher roles: orchestrating resources with pedagogical judgment, positioning students as active investigators, and promoting AI ethical awareness [10]. Teachers' pedagogical expertise is essential when leveraging AI tools. Recent investigations discovered the potential of AI tools in foreign language acquisition as time-saving, cost-effective and user-friendly technologies that facilitate the creation of high-quality learning and testing materials [11], including visuals [12]. Y. E. Yesilyurt examines the integration of AI in language learning assessment and feedback highlighting "limitations of traditional models before exploring AI-driven innovations in automated scoring, speech recognition, multimodal analytics and adaptive testing" [13, p. 25]. The ChatGPT-supported teacher feedback has also become the focus of investigations suggesting positive outcomes for language teacher-AI interaction [14].

T. N. Ngo and D. Hastie propose a replicable model for integrating AI literacy into English for Academic Purposes courses [15]. L. Hurajová and G. Chmelíková emphasise “the synergy between ESP courses and AI-driven educational tools in advancing internationalisation efforts” [16, p. 245]. As for comparing the value of human and AI feedback in essay writing, J. Lo et al. showed that “employing a well-crafted prompt on an AI model with a large context window does not necessarily guarantee substantive feedback” [17, p. 1].

Regarding the AI impact on learners’ performance, a number of studies also present valuable outcomes. E. A. Cherkasova showed that differentiated grammar instruction for technical students shows plausible results [18]. Students exhibit positive attitudes toward AI, particularly digital mentors and chatbots which enhance interaction and support [19]. AI readiness increases with academic progression, with second- and third-year students demonstrating higher capability, cognitive skills, and vision [20]. AI-supported tasks foster students’ cognitive awareness when working with such material [21]. ChatGPT aids in understanding student needs, personalisation, content creation, and resource development [4]. N. Akhrenova and S. Moradkhani successfully implemented an AI-mediated model of instruction for developing language students’ intercultural competence [22]. Recent studies report a significant improvement in language skills when using AI tools [23].

Regarding teachers’ experiences, K. M. Bouguerba describes how AI-powered technologies can “assist instructors in curriculum design and needs analysis by processing learner data and identifying areas for targeted support” [24, p. 153]. V. K. Sharma and R. George revealed teachers’ mostly positive perception of ChatGPT’s pedagogical worth in developing instructional efficiency and learner engagement [25]. M. Al-khresheh explores teachers’ perspectives on ChatGPT integration into English language teaching [26].

Concluding this section, it is noteworthy to say that the observed pedagogical implications stress the importance of blending AI with traditional teaching methods to create inclusive learning environments that prepare students for globalised society’s demands.

MATERIALS AND METHODS

Study materials include samples of teacher’s prompts, samples of learning materials created by the teacher in tandem with AI neural networks: open.ai., yeschat.ai, perplexity.ai. Methods employed pedagogical design, a survey, experimental instruction, and descriptive statistics. The student survey is based on a Likert 5-point scale, and its participants are tech-major students at Togliatti State University (TSU). The Likert-scale survey (from 1=strongly agree to 5=strongly disagree) assessed the learning materials across five categories: integrity with human-created materials, naturalness of written tasks, role-play and role descriptions and language skills, naturalness of audio and video recordings, and prospects for using AI-generated learning materials. The experiment was conducted during 2024-2025 and involved 37 TSU students of tech majors in the experimental group and 37 students of the same tech majors in the control group.

To address RQ1, a five-step scenario for English teacher–AI collaboration was developed based on the prompts some of which are given in the examples of scenarios. The scenario provides a structured approach to designing learning materials grounded on tech students’ communicative needs and tech-industry communicative requirements which were previously described by the researcher [27]. The methodological logic underlying these scenarios begins with clearly delineating input data provided by the teacher and the corresponding output data generated through AI processing. Input data consists of carefully crafted language materials – specific vocabulary, phrases, grammar structures, and functional expressions – for pre-communicative tasks, substitute-speech exercises, role-plays, scripts for video and audio recordings. This stage represents the most challenging aspect of materials design for English teachers, requiring the accurate articulation of professional tech-related tasks within authentic communicative frameworks. To overcome this barrier, reliable teacher prompts were developed and utilised by AI to generate contextually appropriate tasks situated within cross-cultural tech industry settings.

Output data comprises detailed descriptions of how these input materials transform into fully developed, realistic cross-cultural tasks suitable for classroom implementation. These descriptions are comprehensive, presented in text format that facilitates easy adaptation into both textual instructions and visual schematic representations. The five-step scenario is presented below (Fig. 1).

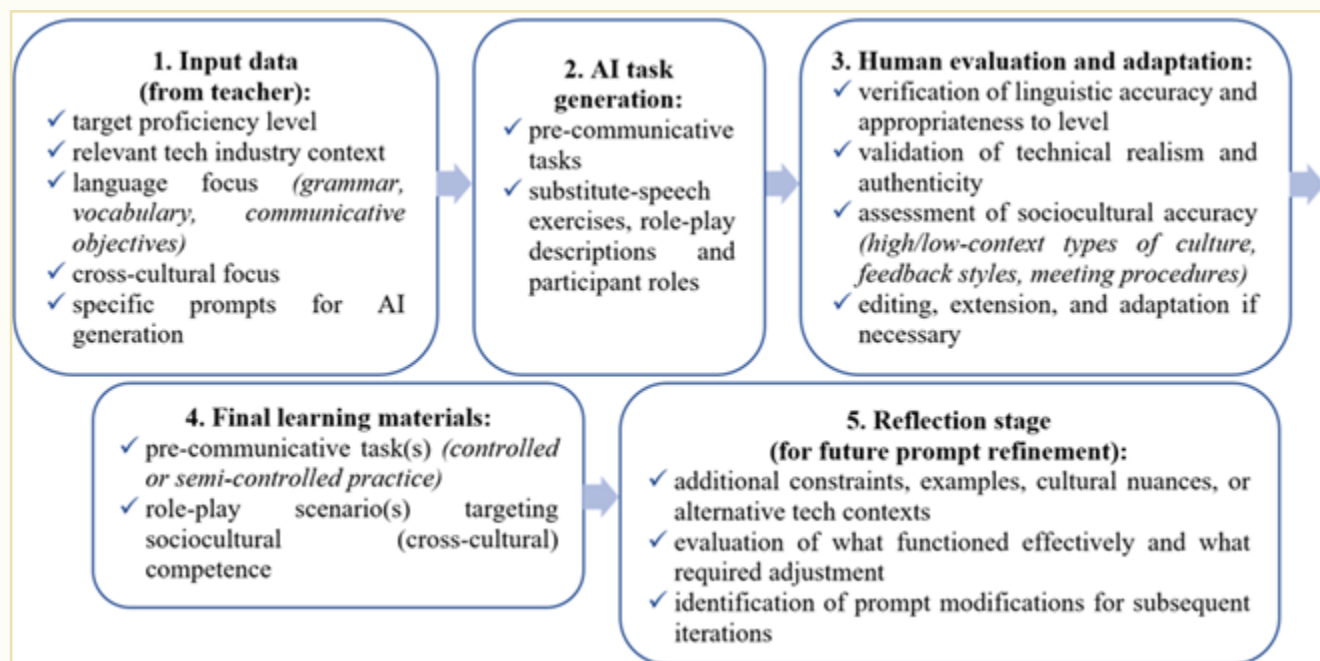


Figure 1 Five-step scenario for English teacher-AI collaboration

Based on the five-step scenario, learning materials were devised to demonstrate the creation of a substitute-speech exercise, a pre-communicative task, and two role-plays.

Example #1. A substitute-speech exercise for B1–B2 tech students for practising used to / be used to / get used to structures.

1.1. Input data.

Target level: B1-B2, tech-major students.

Grammar: *used to, be used to, get used to*.

Context: Discussing past and present experiences with technologies and AI tools in academic/work settings.

Communicative goal: discussing past vs. current tech habits (tools, platforms, coding practices); adaptation to AI-powered tools in coding and language learning.

Teacher's prompt:

Write a substitute-speech exercise resulting in a conversation between B1-B2 learners of English majoring in software engineering. You are an AI communication partner asking a student about their past and present experiences with technologies. Also ask if they are getting used to AI-powered tools in foreign language studies, coding, and other tech-related studies. Each question should introduce a new topic since you don't know whether the student's response will be negative or positive. Ensure the student uses used to/be used to/get used to structures in their answers. Generate 6-8 yes/no questions and tag questions using the previously generated discussion points about IDEs, version control, AI code assistants, AI language tools, and other IT platforms.

1.2. AI task generation.

AI produces:

- a model dialogue script between a student and AI communication partner, comprising 6-8 questions from the AI partner, each introducing a new topic;
- built-in triggers ensuring natural use of *used to/be used to/get used to* in expected student responses.

1.3. Human evaluation and adaptation.

Teacher verification criteria:

- linguistic accuracy and level (Are questions accessible at B1-B2 levels? Do target structures arise organically in responses?);
- technical realism (Are referenced tools/platforms current and believable for tech students?);
- sociocultural authenticity (Does the exchange resemble realistic small talk between tech peers or student-mentor?);
- revision of wording, adding alternative questions, or adjusting topic flow as needed to optimise classroom implementation.

1.4. Final learning materials:

- transforming the AI-generated model dialogue script into the script containing questions for the AI partner and recorded as a video avatar;
- writing a substitute-speech exercise based on the teacher's prompt.

Share your experience of using AI tools in your work or studies. In Video 3.1, your partner will be an AI avatar which will ask you a few questions. Make sure you use the structures used to/be used to/get used to where appropriate in your answers. You will have 10 seconds to answer the questions. If you need more time for your answer, just pause the video. Practise until you are fluent and satisfied with your performance.

Example: AI: That's interesting! And what about documentation – are you comfortable with AI helping you write it? Your possible responses: I'm getting used to letting AI help / I'm not used to AI-generated documentation.

1.5. Reflection stage.

Teacher documentation:

- strengths of AI output (e.g., authentic question flow, appropriate lexical range);
- areas requiring prompt enhancement (e.g., more specific tool constraints, sociocultural appropriateness, etc.).

Example #2. A role-play for a team lead and developers based on code review in mixed cultures.

2.1. Input data.

Target level: B1, software engineering majors.

Functional language: requesting action, clarifying, agreeing, polite questions.

Cross-cultural focus: low-context vs high-context expectations in a code-review meeting.

Communicative goal: handling a simple code-review request in a multicultural team.

Teacher's prompt:

Please provide an example of a communication situation between the team lead and developers who are working on a project. The team lead asks them to do a code review. Account for cultural differences: one participant represents low-context communication (direct, task-focused), the other – high-context (relationship-oriented). Give some examples what all these participants can say in this situation. Include the team lead's key phrase: Could you tell me what steps you're going to take so that we could make sure we're on the same page? The language should be comprehensible for B1 learners of English, majoring in software engineering.

2.2. AI task generation:

- a B1-appropriate short conversation script between a team lead (low-context) and 2 developers (high- and low-context) with the mandatory sentence from the prompt;

- 4-6 sample turns per participant.

2.3. Human evaluation and adaptation:

- clarity and level (Is the grammar/vocabulary B1-appropriate? Are requests and explanations simple enough but still professional?);
- cross-cultural markers (Are differences in directness/indirectness visible but not stereotypical? Does the team-lead ask for clarification; do developers respond in culturally plausible ways?);
- teacher adjustments (adding softeners or more direct phrasing as needed for each type of culture).

2.4. Final learning materials.

Transforming the AI-generated sample conversation into guidelines for the role-play and each role formatted as role cards.

2.5. Reflection stage.

Analysing which prompts gave clear cross-cultural contrasts and where follow-up prompts should request more explicit cultural cues.

Example #3. Pre-communicative task and role-play for practising handling a feedback meeting, simulating a CI/CD demo in a multicultural team (Russia and DACH countries).

3.1. Input data.

Target level: C1, software engineering majors.

Complex functional language: giving/softening criticism, acknowledging feedback, aligning expectations.

Cross-cultural nuances: high-context (Russia) vs low-context (DACH countries) feedback styles.

Communicative goal: simulating realistic feedback after a CI/CD automation-tool demo.

Teacher's prompt:

You teach C1 learners of English majoring in software engineering. Please create detailed descriptions of role-play situations for giving feedback between Student A (high-context culture, Russia) and Student B (low-context culture, DACH region). The aim is to simulate effective communication with DACH professionals. Previously, students practised agenda setting for demoing a CI/CD automation tool in English regardless of cultural differences; this practice should be referenced in the role-play descriptions. Structure each situation as follows:

Situation #1: [Title]

[Context description]

Student A: [Role description], Student B: [Role description]

3.2. AI task generation:

- situation description (who, where, purpose of meeting, link to previous agenda-setting work);
- role descriptions for Student A (Russian PM) and Student B (DACH engineer);
- bullet-point prompts using noun clauses and feedback language (e.g., What concerns me is that..., What I really appreciated was how..., I'd like to understand why...).

3.3. Human evaluation and adaptation:

- linguistic sophistication (Are noun clauses and feedback phrases at C1 level but teachable?);

- cross-cultural nuances (Does Student B's language show typical DACH directness, structure, and time-orientation? Does Student A's language include more context and relationship-oriented framing?)

3.4. Final learning materials.

Pre-communicative task example: *Transform simple statements into feedback with noun-clause frames: The demo was too long → What I found challenging was how long the demo was.*

A role-play example:

Situation: Reviewing the Demo Agenda with a DACH Colleague

Context: Student A is a Russian project manager who has coordinated internal practice sessions on agenda setting for a CI/CD automation tool demo. Student B is a DACH-based solutions engineer responsible for the technical presentation in front of a German-speaking client. Communication in the DACH region is direct, fact-based, and time-efficient, so Student A needs to move from a more high-context, relationship-focused style to a clearer, more explicit way of giving feedback and asking for it. The goal is to align on the agenda and content of the upcoming demo so that expectations are transparent and feedback is understood without reading between the lines.

Student A: (Russia, high-context culture) – project manager.

You organised dry runs based on previous work on agenda setting for the CI/CD automation tool and now wants to check if the demo structure works for a DACH client. Give some constructive negative feedback. Use downgrades.

Student B: (DACH region, low-context culture) – solutions engineer/demo presenter. You prepared slides and a live demo flow and expects clear, concise, and data-based feedback.

3.5. Reflection stage:

- analysing which feedback frames students use spontaneously and where more modelling is needed;
- using this to tune future prompts (e. g., "Generate 5 more feedback frames with what/why/how clauses.").

To address RQ2 about the learner evaluation of human–AI collaborative learning materials, the student survey was administered to elicit students' assessment of the learning materials created on the basis of the scenarios presented above. The results of this 9-item survey appear in Table 1. Eighteen tech-major students from the experimental group volunteered as survey participants.

Table 1 Survey results among tech-major students

Survey questions	Options for answers				
	strongly agree	agree	neutral	disagree	strongly disagree
1. The AI-generated learning materials fit well with the materials designed by my human teacher (in terms of topic, difficulty, and style)	38.9%	44.4%	11.1%	5.6%	0%
2. The AI-generated tasks feel like a logical continuation of what we do in class with human-created materials	22.2%	50%	22.2%	5.6%	0%
3. The AI-generated written tasks (translation, grammar and vocabulary exercises) sound natural and authentic to me as a user of English in tech	22.2%	33.3%	22.2%	22.2%	0%
4. The AI-generated written tasks accurately reflect how English is used in real technical and professional communication (e.g., documentation, emails, meetings)	33.3%	38.9%	11.1%	16.7%	0%
5. The AI-generated role descriptions for role-plays (e.g., DACH – Russia interactions, client demos, feedback meetings) help me understand how cross-cultural communication works in real professional situations	27.8%	50%	16.7%	5.6%	0%

6. The AI-generated role-play scenarios realistically show socio-cultural differences (e.g., direct vs. indirect feedback, meeting etiquette) that I might face in my future tech career	44.4%	27.8%	16.7%	11.1%	0%
7. The AI-generated audio and video recordings sound natural in terms of language, intonation, and interaction between speakers in a professional tech context	22.2%	27.8%	44.4%	5.6% (1)	0%
8. The AI-generated audio and video recordings provide realistic examples of how tech professionals communicate across cultures (e.g., in demos, stand-ups, or client calls)	16.7%	50%	22.2%	11.1%	0%
9. I don't mind using AI-generated learning materials to master English communication skills	33.3%	27.8%	33.3%	0%	5.6%

The table shows that *the integrity AI-generated output with human-created materials*, 83.3% (Q1) and 72.2% (Q2) of the participants agreed/strongly agreed that materials integrate seamlessly. Regarding the naturalness of written tasks, 55.6% (Q3) and 72.2% (Q4) gave positive answers while 22.2% and 16.7% disagreed with the corresponding statements. The overwhelming majority of the respondents positively assessed AI-generated role-play scenarios and role descriptions which realistically show cross-cultural differences: 77.8% (Q5) and 72.2% (Q6) respectively. This category as well the next one has the fewest number of negative answers (5.6 and 11.1%%).

Students' attitudes towards the naturalness of audio and video recordings are the following: 50% agreed or strongly agreed that AI audio/video sound was natural; 44.4% were neutral, and only 5.6% disagreed (Q7). As for Q8, 66.7% agreed or strongly agreed that these recordings give realistic examples of cross-cultural tech communication, 22.2% were neutral, and 11.1% disagreed. The prospects for using AI-generated learning materials were positively estimated by 61.1%, 33.3% were neutral, and only 5.6% clearly negative.

To answer RQ3 about changes in language performance associated with the implementation of the human-AI collaborative learning materials, experimental teaching was initiated by the author of the article. The starting level of English proficiency in the control and experimental groups was B1-B2 according to the Common European Framework of Reference for Languages (CEFR). Pre- and post-tests were administered in the control and experimental groups by TSU instructors in accordance with the institution's standard procedures and had the same difficulty level and scoring criteria across both groups; results were summarised in the final assessment grid according to the skills in question and were available on the TSU educational platform. The pre-tests were identical in both groups and were administered at the end of the first year of studies as part of General English courses. They contained the following tasks that allowed to assess speaking, lexical-grammar, and listening skills on a 100-point scale: (a) a listening comprehension test; (b) a lexical and grammar test; (c) a speaking test in the form of a dialogue based on a suggested situation. From the beginning of the second year, the control group continued using traditional learning materials for adult students focusing on everyday communication whereas instruction in the experimental group was based entirely on human-AI collaborative learning materials tailored to tech students' communicative needs and requirements of the tech industry. After one semester of instruction, the post-test was conducted.

Table 2 Results of instruction in the control and experimental groups

Control group		Experimental group	
Metric	Value	Metric	Value
pre-test mean	85.27	pre-test mean	78.03
post-test mean	76.54	post-test mean	88.17
t-statistic	-3.97	t-statistic	4.74
p-value	p < 0.05	p-value	< 0.001
Cohen's d	-0.65	Cohen's d	0.86

In both groups the post-tests were administered in the same format and included the same type of tasks as the pre-test, assessing speaking, listening, and lexical-grammar skills on a 100-point scale: (a) a listening comprehension test; (b) a lexical and grammar test; (c) a speaking test in the form of a dialogue. The content of the tasks for the control group aligned with the General English course while the experimental group was tested using the content of the tailored English course. The effect of the teaching intervention on language performance is shown in Table 2.

Pre-test scores in the control group ranged from 59 to 100 points, and post-test scores were from 48 to 98 points. This is a statistically significant decrease in performance from pre-test to post-test, since $p < 0.05$. The effect size is in the moderate range by common benchmarks, so the decline is not only statistically significant but also practically meaningful. The experimental group scored from 61 to 95 points in the pre-test and from 65 to 100 points in the post-test. A paired-samples t-test showed that post-test scores were significantly higher than pre-test scores, $t(37) = 4.74$, $p < 0.001$, with a large effect size (Cohen's $d = 0.86$).

DISCUSSION

This study aimed to evaluate whether AI-assisted, teacher-mediated materials are perceived as adequate and whether they are associated with improved learner outcomes. Having answered all the research questions, the current findings can be summarised as follows:

1. The development of the five-step scenario for English teacher-AI collaboration can effectively guide learning material design tailored to tech students' communicative needs and the requirements of the tech industry.
2. The overwhelming majority of study participants gave positive evaluations of learning materials developed through English teacher-AI tandem.
3. The use of English teacher-AI collaborative learning materials significantly improved tech students' language skills, including speaking, listening, and lexical-grammar skills, compared with the control group (Cohen's $d = 0.86$; $p < 0.001$), whereas the control group showed a decline (Cohen's $d = -0.65$; $p < 0.05$).

Most students viewed the AI-generated materials positively across all five categories, with especially strong support for role-play scenarios and overall integration with materials created by the human teacher. Students see the content and situations in the recordings as fairly realistic, but many are uncertain about the naturalness of language and intonation, as shown by the high neutral rate on Q7. As for naturalness of written tasks, students are generally positive about the realism of written tasks, but this is the area with the most divided opinions, suggesting that about one fifth perceive some tasks as less natural or less authentic. The category of role-plays, role descriptions, and language skills proved to be one of the strongest: roughly three quarters of students feel that the AI-generated role-plays support their understanding of professional cross-cultural communication and nuances relevant to their future tech careers. Being the weakest category, naturalness of audio and video recordings and its assessment have some additional value to the study because they were widely employed in creation of the learning materials in question and, therefore, need the biggest improvements. In terms of future use, the majority of the students are open or positive about AI-generated learning materials, with about one third undecided but almost no outright rejection, indicating good prospects for continued integration and further refinement of these materials.

The decline in the control group's scores may reflect lower motivation to study General English since the course did not address the students' disciplinary needs, communicative needs or professional interests. This suggests that learner motivation may be strengthened through AI-driven material design that better aligns with disciplinary needs.

The present research complements studies on the intercultural dimension in ESP courses based on surveys and interviews [28] and aligns with the agenda of AI's didactic properties and learning functions proposed by P. V. Sysoyev [5] who emphasised that "... humanities research and education constantly produce new models and methods of interaction with the digital reality, which can and should be confidently introduced in education constantly experimenting with the new approaches" [5, p. 673]. The study further extends the observations made by D. Tafazoli and L. McCallum [4],

regarding the potential of ChatGPT in content creation and resources development. Focusing on the learners' feedback, the results further support research on humanities and technical students' experience of AI tools and their perceptions of personalisation in education [19]. In addition, the findings contribute to the literature on the integration of AI technologies into intercultural competence acquisition and communication skills [29] and reinforce the need to update learning materials and ESP instruction methods for tech majors [30]. The elaborated scenarios for English teacher-AI tandem illustrate how chatbots can compensate for language instructors' limited disciplinary knowledge in tech-related fields [31]. Although this study has certain limitations related to the sample size and context, it suggests a promising direction for future research on language competence development at the tertiary level.

CONCLUSION

This study aimed to investigate how language teachers can interact effectively with AI tools to create learning materials which are adequate for developing learners' language skills. The findings suggest that teachers should be empowered by scenarios that effectively operationalise teacher-AI collaboration, with prompts overcoming domain gaps. Furthermore, student evaluation supports the use of learning materials tailored to tech students' communicative needs and to professional communication in the tech industry. The findings also suggest that instruction based on such materials can improve learners' language performance. Further investigations of language teacher-AI collaboration would be beneficial for contributing to a more conscious and responsible integration of AI tools in language education.

REFERENCES

1. UNESCO: AI Competency Framework for Teachers. Available at <https://unesdoc.unesco.org/ark:/48223/pf0000391104> (accessed 8 June 2026).
2. Zawacki-Richter O., Marín V. I., Bond M., Gouverneur F. Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 2019, vol. 16, Article 39. DOI: 10.1186/s41239-019-0171-0
3. Çelik I., Dindar M., Muukkonen H., Järvelä S. The promises and challenges of artificial intelligence for teachers: A systematic review of research. *TechTrends*, 2022, vol. 66, no. 4, pp. 616-630. DOI: 10.1007/s11528-022-00715-y
4. Tafazoli D., McCallum L. Exploring the affordances of ChatGPT in developing language teachers' awareness and pedagogical practices. *Journal of Language and Education*, 2025, vol. 11, no. 3, pp. 86-97. DOI: 10.17323/jle.2025.27858
5. Sysoyev P. V. Didactic properties and learning functions of neural networks. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, 2024, vol. 72, no. 6, pp. 672-690. DOI: 10.32744/pse.2024.6.42
6. Stockwell G., Wang Y. Framing human-AI collaboration in language education. *Technology in Language Teaching & Learning*, 2025, vol. 7, no. 4, Article 103824. DOI: 10.29140/tl.v7n4.103824
7. Sysoyev P. V. The use of generative artificial intelligence by students in the preparation of qualification research papers. *Perspektivy nauki i obrazovaniya = Perspectives of Science and Education*, 2025, vol. 5, no. 75, pp. 634-649. DOI: 10.32744/pse.2025.5.41
8. Valera A. S. Using the language needs of information technology students in developing an English for Academic Purposes prototype materials for communication arts. *International Journal of Social Science and Humanities Research*, 2019, vol. 7, no. 3, pp. 365-387. DOI: 10.13140/RG.2.2.15964.36480
9. Singha S., Singha, R., Jasmine E. Enhancing language teaching materials through artificial intelligence. *In Advances in artificial intelligence applications (pp. 22-42)*, 2024. IGI Global. DOI: 10.4018/979-8-3693-0872-1.ch002
10. Jeon J., Lee S. Large language models in education: A focus on the complementary relationship between human teachers and ChatGPT. *Education and Information Technologies*, 2023, vol. 28, no. 12, pp. 15873-15892. DOI: 10.1007/s10639-023-11834-1
11. Shchebelskaya E. G., Mayer V. V. Applying artificial intelligence in foreign language teaching at a non-linguistic university. *Mir nauki, kul'tury, obrazovaniya*, 2023, no. 5, vol. 102, pp. 76-81.
12. Vigna-Taglianti J. AI-generated images as a teaching tool in foreign language acquisition. *Technology and Language*, 2024, vol. 5, no. 3, pp. 85-105. DOI: 10.48417/technolang.2024.03.07
13. Yesilyurt Y. E. AI-enabled assessment and feedback mechanisms for language learning. *Handbook of Research on Teaching Methods in Language Translation and Interpretation*, 2023, pp. 25-43. DOI: 10.4018/978-1-6684-9893-4.ch002
14. Han J., Li M. Exploring ChatGPT-supported teacher feedback in the EFL context. *System*, 2024, vol. 126, Article 103502. DOI: 10.1016/j.system.2024.103502
15. Ngo T. N., Hastie D. Artificial intelligence for academic purposes (AIAP): Integrating AI literacy into an EAP

- module. *English for Specific Purposes*, 2025, vol. 77, pp. 20-38. DOI: 10.1016/j.esp.2024.09.001
16. Hurajová L., Chmelíková G. ESP/LSP courses in the era of artificial intelligence: potential for facilitating the internationalisation process. *The Journal of Teaching English for Specific and Academic Purposes*, 2025, vol. 13, no. 1, pp. 245-256. DOI: 10.22190/JTESAP250218020H
 17. Lo J., Wong C., Ng A., Wong P., Cheung D., Lai P. Stretching AI's reach: Assessing an AI-driven feedback system for extended academic writing. *Computers and Education: Artificial Intelligence*, 2026, vol. 10, Article 100511. DOI: 10.1016/j.caeai.2025.100511
 18. Cherkasova E. A. An experiment on the differentiated teaching of English grammar to students at a technical university through educational interaction with a chatbot based on generative AI. *Tambov University Review. Series: Humanities*, 2024, vol. 29, no. 5, pp. 1239-1247. DOI: 10.20310/1810-0201-2024-29-5-1239-1247
 19. Pospelova E. A., Gorlacheva E. N., Ototsky P. L. Application of generative artificial intelligence in education personalization: Perceptions of humanities and technical students. *Integration of Education*, 2025, vol. 29, no. 4, pp. 734-752. DOI: 10.15507/1991-9468.029.202504.734-752
 20. Teoh L. R. G., Singh M. K. M., Muniandy J. AI knowledge readiness among university students: A cross-sectional quantitative study. *Training, Language and Culture*, 2025, vol. 9, no. 4, pp. 112-129. DOI: 10.22363/2521-442X-2025-9-4-112-129
 21. Nurtazina M. B., Trofimova G. N., Kesner J. AI tools and cognitive lexicology in language education: A cross-linguistic perspective. *Training, Language and Culture*, 2025, vol. 9, no. 4, pp. 21-34. DOI: 10.22363/2521-442X-2025-9-4-21-34
 22. Akhrenova N. A., Moradkhani S. A metacognitive-cultural model for AI-mediated intercultural learning. *Training, Language and Culture*, 2026, vol. 10, no. 1, pp. 126-143. DOI: 10.22363/2521-442X-2026-10-1-126-143
 23. Gulov A. P., Yudin N. O., Chigasheva M. A., Printsipalova O. V., Selezneva V. V. The Impact of AI tools on the development of foreign language skills and digital competence: A longitudinal study and assessment matrix. *Vysshee obrazovanie v Rossii = Higher Education in Russia*, 2026, vol. 35, no. 3, pp. 90-113. DOI: 10.31992/0869-3617-2026-35-3-90-113
 24. Bouguerba K. M. Artificial intelligence in the service of English for Specific Purposes. *Studies in Linguistics and Language Education*, 2025, vol. 1, no. 2, pp. 153-166. Available at: <https://asjp.cerist.dz/en/article/285690> (accessed 8 June 2026).
 25. Sharma V. K., George R. Teachers' perceptions and experiences of ChatGPT integration in language learning and academia: A mixed-method study. *Arab World English Journal*, 2026, vol. 17, no. 1, pp. 103-115. DOI: 10.24093/awej/vol17no1.7
 26. Al-khresheh M. H. Bridging technology and pedagogy from a global lens: Teachers' perspectives on integrating ChatGPT in English language teaching. *Computers and Education: Artificial Intelligence*, 2024, vol. 6, Article 100218. DOI: 10.1016/j.caeai.2024.100218
 27. Tsepilova A. V., Bazhutina M. M. Technology of planning learning outcomes for foreign language instruction at a non-language university. *Metaverse of Foreign Language Education: Approaching the Future*. Tomsk State University Publishers, 2025, pp. 229-255.
 28. Sinkus T., Ozola I. Integrating intercultural dimension in ESP course for undergraduate IT students. *Proceedings of Engineering for Rural Development, 24-26 May 2023, Jelgava, Latvia*, pp. 810-816. DOI: 10.22616/ERDev.2023.22.TF159
 29. Ma G., Yang X. Fostering intercultural competence through AI-driven tools: A case study of linguistic and cultural adaptability in Chinese EFL education. *Digital Technologies Research and Applications*, 2025, vol. 4, no. 1, pp. 158-169. DOI: 10.54963/dtra.v4i1.962
 30. Zhaiykbay K. T., Gaipov D., Kulgildinova T. A., Ushurova S. M. IT specialty students' pragma-professional communicative competence in Kazakhstani ESP classes. *The Journal of Teaching English for Specific and Academic Purposes*, 2024, vol. 12, no. 3, pp. 755-767. DOI: 10.22190/JTESAP241014056Z
 31. Assassi T., Bouaziz M. Reimagining ESP pedagogy with artificial intelligence: Addressing challenges in domain-specific knowledge. *RIDILCA*, 2025, vol. 3, no. 1, pp. 39-57. Available at: <https://asjp.cerist.dz/index.php/en/article/267253> (accessed 8 June 2026).

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