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# Application of artificial intelligence in higher education institutions for developing soft skills of future specialists in the sphere of information technology

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**Abstract.** This paper aims to delineate the significant role of artificial intelligence (AI) in developing the soft skills of future information technology (IT) professionals. To achieve this goal, the authors give some relevant considerations concerning using AI in teaching humanitarian subjects and explore the use of AI to develop soft skills essential for future IT professionals. First, the analysis of the survey results confirms that students are not aware that using AI in education is very helpful. That is why many students (51.8%) do not use them at all. Therefore, we have an intention to give the examples of the use of AI tools for educational purposes to equip students, first of all, with understanding of soft skills value, and, secondly, let them complete the tasks that contribute to the development and improvement of their soft skills. Second, we defined that the soft skills (communication, negotiation, problem-solving, finding a common language with colleagues and clients, public speaking, and intercultural) are essential for conducting professional communication with colleagues in the sphere of IT to satisfy the demands of the IT industry in the modern-day world. Third, the paper contributes scientifically to investigating the integration of AI technologies in the university-level educational landscape. Integrating AI in higher education institutions offers a promising route for developing or boosting the soft skills necessary for future specialists in the field of IT. Drawing on a comprehensive review of literature focusing on the use of AI technologies in the contemporary world and considering the empirical data from the online survey, the study investigates the opportunities of AI tools to foster soft skills required to achieve the active collaboration of IT employees for companies.

## 1. Introduction

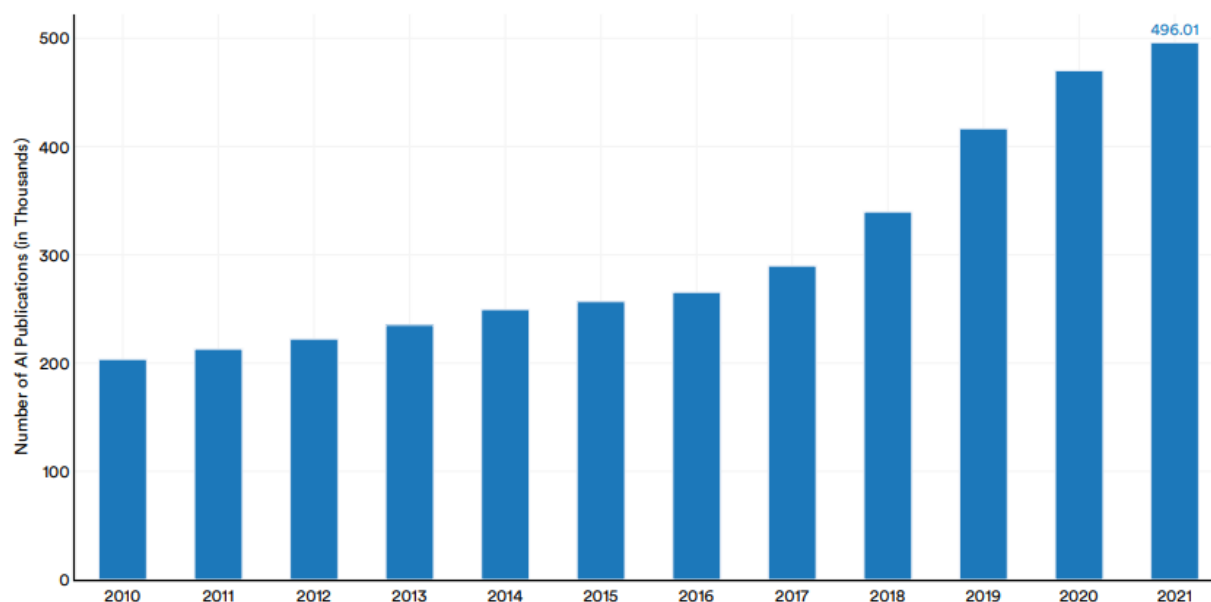
### 1.1. The most relevant data considering the world experience of applying AI

Artificial intelligence (AI) is changing our society. AI also changes the way we learn, research, or work. AI accompanies us everywhere, wherever we are in the contemporary world. Nowadays, we have a lot of AI tools that can help us with various tasks and challenges. Currently, the number of AI tools is more than 5 304 [1], or even more; their number reaches from 5 619 [2] to 10 245 AI tools [3]. The capabilities of AI tools are becoming more and more diverse. As proof,



we give the following fact: In March 2023, the responsible experts registered 271 new capabilities for the current year. We noted that new and unique capabilities appeared every month. Notably, in December of the current year, in 2023, these were the following AI tools: descriptive navigation (<https://aimaps.app>), personalized Santa videos (<https://www.santaknowsyoud.com>), Arduino code generation (<https://www.pleasedontcode.com>), agents (<https://www.monoid.so>), government contracts (<https://www.bidlytics.co>), call bots (<https://adola.ai>), live captions (<https://line-21.com>), cross-platform communication (<https://www.drift.com>), outfit feedback (<https://www.myfitchecker.com>), screen recordings (<https://www.screenstory.io>).

Besides, the quantity of scientific articles that shed light on AI is constantly growing. Researchers from around the world delve into areas of applying AI. So, as Figure 1 illustrates, from 2010 to 2021, the total number of publications related to AI increased twice, from 200,000 in 2010 to almost 500,000 in 2021.



**Figure 1.** The quantity of scientific publications about AI from 2010 to 2021: the scale of world science [4].

### 1.2. Using AI in education

Today, higher education has experienced the incorporation of AI tools in learning and teaching. In our view, it is not a surprise for all, as in modern reality, “AI in education refers to the integration of AI into the educational practices to ensure that the entire learning process is effectively supported” [5]. Most likely, this is not a minor reason; it is a matter of understanding why teachers use AI tools to teach future specialists in the sphere of IT at higher education institutions. Let us note some relevant aspects in this context. We consider that pedagogues mainly use AI tools to develop students’ hard skills, but in our view, developing soft skills is also essential. Humanities disciplines, predominantly English, play a leading role in this process. In this context, we note that “AI may be beneficial for language teaching and learning for a series of reasons, including the fact that it can support the learning of vocabulary and grammar, improve students’ skills such as problem-solving and collaboration, provide real communicative situations, save time for teachers, and offer personalization, adaptability, and flexibility, among others” [6].

Noteworthy of mention is that in the contemporary landscape of higher education, training future specialists with a major in IT includes the teaching approaches (the symbolic “top-down” approach and the connectionist “bottom-up” approach) that imply the usage of AI and related instruments. These AI instruments serve as resources for improving technical knowledge and technical/hard skills. We also would like to mention that the development of the hard skills (the hard skills: programming languages, database management, statistical analysis, storage systems, and management) of future IT specialists is essential. These skills are valuable for conducting work in the IT sphere. Students can demonstrate their proficiency in hard skills via relevant skill assessment tests and their ability to work in the IT sphere. However, alongside the development of hard skills, the development of soft skills arises as an equally essential aspect within the training of IT specialists at the university level. Let us mention that the study of humanitarian disciplines at universities contributes to the development of soft skills for future IT professionals and promotes a successful career path.

While technical understanding (hard skills) remains essential for IT professionals, the evolving requirements of the modern-day labor market to specialists emphasize the indispensability of having and improving soft skills. And that is why, humanitarian subjects, particularly the study of a foreign language, are primary contributors to soft skills development, ensuring the wellrounded training of future IT specialists.

## **2. Literature review on the AI application in modern-day life**

To observe the scope of AI applications, we focus on articles that reveal AI’s use for developing soft skills. In line with this intention, we have taken into consideration the fact that given the increased importance of AI in the modern-day period, there are AI tools and various applications that pedagogues can apply to develop soft skills for specialists of different specialties [7]. There is an apparent demand to obtain soft skills in technologically driven spheres. Professional collaboration requires soft skills such as critical thinking, problem-solving, communication skills, and creativity with flexibility [8]. Vidal et al. [9] consider the methodology that addresses obtaining soft skills by future specialists in the computer technology sphere. Scholars emphasize the need to incorporate AI capabilities in curriculums to improve or develop students’ critical thinking and problem-solving abilities, support independent learning, and help educators design curriculums effectively [10].

Moreover, some works describe the experience of using AI in teaching English. Briguglio associate studying English with forming soft skills [11]. In this context, it is essential to note that currently, there are automatic speech recognition (ASR) technologies (use of machine learning or AI technology to process human speech into readable text) that can facilitate the improvement in pronunciation to a more considerable extent than human teachers can and, because of constant improvements of this technology, ASR programs have great potential in foreign language learning [12]. Researchers consider ChatGPT to support language learning and the development of linguistic and social skills [13].

Additionally, we noticed that in a systematic review of scientific studies on the use of AI in teaching and learning English, Sharadgah and Sa’di [5] made the following conclusions: first, AI in English language teaching yielded positive results in terms of optimizing English language skills, translation, assessment, recognition, attitude, satisfaction; second, AI technologies make it possible to make the learning process more differentiated, promote a wide choice of students; many new systems for language learning using AI appear daily; third, now teachers apply various approaches evolving AI technologies for language learning, including machine learning, neural network, support vector machine, genetic algorithms, deep learning, decision tree, expert system, natural language processing, data mining, cloud computing, and edge computing. Scholars confirm the idea and our belief that the pedagogues are optimistic about the potential of AI-assisted language learning (AIALL) for teaching and learning languages. However, they feel a

certain anxiety regardless of their context. Besides, the scientists approve that teacher training is essential to introduce AIALL in the classroom and that practitioners need to rethink assessment to avoid plagiarism and cheating, but also to take advantage of AIALL [6].

This path of using AI in English language teaching is still in its infancy and hardly moves from the initial point. In this regard, there is a need to investigate the use of AI tools and to develop the soft skills of future professionals in the IT sphere.

Researchers recognize that the landscape of IT has dramatically transformed with the onset of AI and many AI tools, and they are now widespread in education. These tools have flooded almost every sector, not only an educational one, and consequently change how we live, work, and interact. AI tools are used in healthcare to predict diseases [14]. They help during surgical operations [15]. They accurately and quickly diagnose diseases [16].

It is worth noting that business people use AI tools to do big data analytics, automatize routine statistic tasks, and satisfy their customers' demands [17,18]. People use AI tools in the entertainment industry for audio, image, and video analysis, gaming, journalism, script writing, filmmaking, social media analysis, and marketing [19]. Citizens, researchers, and employees use AI tools in the transportation sector to optimize routes, predict maintenance needs, and develop autonomous vehicles [20–22].

The materials analyzed and presented above confirm that AI spreads in almost all spheres of modern-day life. The area in which AI is expected to have the most significant impact is education; it will promote a new twist in teaching and learning [23]. At the present stage, in the education sector, pedagogues use AI tools in education to support active self-regulated learning [24], personalized [25], blended [26], and adaptive learning formats [27]. AI tools help educators tailor and satisfy each learner's needs, enhancing special education's learning process [28].

Delving into the theme of the application of AI in education, it is relevant to mention that teachers perceive AI as a whole with various educational technology platforms such as virtual mentors, voice assistants (Google Assistant, Siri, Cortana), smart content, presentation translator, global courses (Udemy, Google AI, Alison, Khan Academy, edX, Udacity, Coursera, etc.), automatic assessment, personalized learning (Ruangguru, etc.), educational games, the intelligent tutoring system or intelligent computer-aided instruction [29].

Today, the professional training of IT specialists is only complete with AI tools [30]. The AI tools are applicable for solving programming problems [31], improving the code completion strategy [32], intelligent Python language teaching [33], mathematical training [34], assisting novice programmers [35].

The quick advancement of AI covers all spheres of life activity, everyday life, and education. Notably, as the literature review on the application of AI in modern-day life shows, educators and researchers devote much time to investigating AI-related issues. They delve into the topic of using AI tools in the professional training of future IT specialists. In their scientific papers, the researchers investigate and analyze approaches to forming hard skills (programming, mathematical) in teaching. It is a well-known fact that soft skills are also crucial in the future professional activity of IT specialists. Therefore, we focus on AI and consider its applicability in developing and improving the soft skills of future IT specialists.

### 3. Theoretical background

*3.1. The definition of the term “artificial intelligence”, abbreviated as AI. Key benefits of AI*  
The term defines the meaning of the abbreviation AI and the expression “artificial intelligence”, a layman associates with describing the simulation of human intelligence processes by machines or computers. A key benefit of AI is its ability to make a difference in all spheres of human lives. Note that “AI provides a huge imagination space for future life, and education is considered as one of the best application scenarios of AI landing” [36]. Fraud detection, customer service work,

quality control, and lead generation are some of the tasks that technology effectively automates.

AI can be beneficial. AI can benefit learning English in the educational environment in nonlinguistic departments. As AI continues to develop, more and more tools people know. These AI tools are available, and they help people learn English. There are many ways that people can use to improve their English skills (reading, writing, speaking, listening) with AI.

In particular, we draw attention to chatbots, which are becoming increasingly popular. Scientists refer to “chatbots” as “conversational agents”. They allow for human-computer interaction using the technology’s natural learning processing abilities that provide information via interactive methods [37, 38].

There are 3 major components of chatbots [37]:

- chatbots are inclined to simulate human speech [39];
- chatbots interact with and relate to messages [40];
- chatbots do not have a physical presence [41].

### *3.2. What are the tools of AI? Classification of the AI tools*

AI tools are applications or systems that use AI techniques, including machine learning, deep learning, natural language generation, speech recognition, biometrics, and more, to complete tasks that usually require human intelligence or creativity [42]. In our time, we have a lot of AI tools that can help us with various tasks and challenges. The company “Sequoia Capital” offered the document entitled ‘Generative AI: A Creative New World’ – ‘The Generation AI Application Landscape’ (for short: Landscape). This document – Landscape – deals with and describes the domains of use of generative AI (text, code, image, speech, video, 3D, and other), the functions that applications perform separately for each category at the applications level, and the models on which they are based. These models are based on an infographic designed by Richie Cotton for the online learning company Data Camp [43]. The document “Landscape” involves information on text, image, video, audio, coding, the daft application, bots, and other applications. For example, text applications that are used for the following purposes: first, to search on the Internet (Andi, Microsoft new Bing); second, in the sphere of enterprise, sales, marketing, and accounting (ExactBuyer, Glean, Hebbia); for jobs (Apply AI, hireBrain, JobHuntMode); for books, images, podcasts, videos and TV (All Search, Anypod, EveryPixel); for research purposes (AlphaResearch, Elicit, NewsDeck); for code (bloop, GitHub Data Explore); second, to chat (OpenAI ChatGPT, Google Bard, Claud); third, to sales and marketing copy generation (anyword, copy.ai, copymatic, Creatext); fourth, to e-mail generation (Autobound, Benchmark, HyperType); fifth, to note-taking and document summarization (Cogram, genei, Hila); sixth, writing assistance and translation (WordTune, git18n, Grammarly).

These are just some of the many AI tools available today. Earlier this year, 2024, more and more AI tools are being developed daily. AI tools help enhance our productivity, creativity, and knowledge and solve some of the most complex problems in the professional training of future IT specialists.

### *3.3. The practical aspects of using AI instruments in soft skills development within the preparation of future IT specialists*

Soft skills are essential in the preparation of future IT professionals. Scientists think communication, collaboration, and problem-solving are among the most demanded soft skills in IT job opportunities [44]. Diwan, Waite, and Jackson considered the importance of group work skills, including negotiation skills, in preparation for students in computer science [45]. Also, Sumaiya et al. identify an essential skill as building personal relationships with team members to provide a feeling of connection, harmony, and an everyday basis for successful outcomes and desired results [46]. As a result of the professional training of future IT

specialists, higher education institutions can promote students' employability skills, including intercultural communicative competence and foreign language skills for effective communication in international working environments. Also, Li et al. [47] and Briguglio [11] focus on indicating that developing intercultural communication skills can help IT professionals find a common language with colleagues and clients from diverse backgrounds.

So, based on the analysis of scientific publications on the soft skills of future IT specialists, we can name the soft skills that pedagogues can develop using AI tools, namely communication, negotiation, problem-solving, the ability to find a common language with colleagues, and clients, public speaking, and intercultural skills. For future IT specialists to form these skills using AI tools, we suggest using prompts in Microsoft Copilot (before Bing Chat).

## 4. Materials and methods

### 4.1. *Methods, data collection tools and procedures*

The study is a descriptive (description of the experience of using AI in education), qualitative (literature analysis), and quantitative (questionnaire) study, using the data that the authors took from the analysis of the survey conducted at non-linguistic higher schools. We surveyed students in Bratislava, Slovakia, during the fall semester 2023. We compiled survey data from 24 November 2023 to 12 December 2023. Data collection involved an online survey in Google Forms comprised of 5 questions (appendix A). When compiling the questionnaire, we used the recent scientific research findings of Dakakni and Safa [48]. Participants, 110 young people, are bachelor's students of non-linguistic higher education institutions – first-year students (89.1%) and second-year students (10.9%).

### 4.2. *The aim, objectives, and the research questions of the study*

Our scientific research aims to clarify the role of soft skills for students who majored in IT. We consider using AI tools in teaching humanitarian subjects in the educational process.

We stated the following research questions (RQ):

- RQ 1.** Are AI tools used to build the soft skills of future professionals in IT? What is the experience of using them?
- RQ 2.** What AI tools can the teacher use to develop the soft skills of IT professionals in learning English?
- RQ 3.** Can AI technologies contribute to developing soft skills in English language learning? How?

To answer these questions, we set the following objectives:

- to analyze the experience of using AI to develop soft skills, in particular in the professional training of future IT specialists;
- to identify specific AI tools used to develop soft skills when future IT professionals learn English;
- to offer examples of using AI tools to develop the soft skills of future IT specialists in learning English.

## 5. Results

### 5.1. *Descriptive findings from the online survey*

In line with the second research question, "What AI tools can be used to build the soft skills of IT professionals in the process of learning English?", the answers of students to the proposed questions were considered (appendix A and appendix B).

The analysis of students' answers to the Q1 of the questionnaire – “Which tools (of those listed below) do you use most frequently in learning English as a foreign language” – approximately 51.8% do not use these tools, 29.1% favoured Chat GPT, 9.1 – Grammarly, 3.6% – Bing (Microsoft Copilot), 2.7% – Quillbot in addition to Chat GPT, 1.8% – Bard (Gemini), 0.9% – Assistant Poe, 0.9% - Quillbot.

In order to reveal the purpose of AI use, Q2 – “What are the reasons for using AI tools?” – was proposed. It was disclosed that the primary reason is that AI tools give students ideas for their study of English. Note, that 16.4% of respondents chose this option. Approximately the same number of respondents think that AI tools support their intention to learn the English language, respectively 11.8% of respondents confirmed it, and that AI tools help to maintain high grades by getting creative ideas to help with their assignments and essays, 10.9% of respondents think so. And, 9.1% hold the view that AI tools add more style and technique to their writing in English.

Attitudes towards AI we found out by means of analyzing the answers to two questions. So, let us look at these questions. Answering Q3 – “What is your opinion on AI tools and their use in learning English?” – students, namely 78.2%, noted that AI tools are beneficial. Answering Q4 – “Would you prefer to be taught the English language using AI teacher bots or human teachers?” – the vast majority of the respondents, namely 87.3%, noted that they prefer a human teacher.

The issue related to AI and ethical concerns is of great relevance today. It was noted that opinions on this matter divided equally.

To illustrate the usefulness of AI tools in the professional IT sphere, we propose IT students to complete a range of tasks that involve the professional situation that are real at work. So, students use IT and understand the benefits of applying them in work-related situations.

### *5.2. Tasks for developing soft skills of future professionals in IT sphere*

To form communication skills, you can invite students to ask Microsoft Copilot tasks to write a negotiation plan on creating an online store site or an interview question. Such tasks will provide students with examples based on which they can develop their plan/strategy or scenario of communication with the customer regarding the development of a particular software product or prepare for an interview.

**Task 1.** Develop a plan (scenario) of communication with the customer regarding the development of a specific software product.

**Prompt** in Microsoft Copilot (Style “More Balanced”): Write a plan for negotiations regarding the creation of an online store website. Let us present 1 of 30 responses.

**Answer** Microsoft Copilot: To create a plan for negotiations regarding the creation of an online store website, you can follow these steps:

1. **Define the scope of the project:** Determine the goals and objectives of the website, the target audience, and the features that the website should have. This will help you to identify the resources that you need and the budget required for the project.
2. **Research the market:** Conduct market research to identify the competition, the trends, and the best practices in the industry. This will help you to identify the unique selling points of your website and to differentiate it from the competition.
3. **Identify the stakeholders:** Identify the stakeholders involved in the project, including the decision-makers, the project team, and the vendors. This will help you to establish clear lines of communication and to ensure that everyone is on the same page.
4. **Develop a project plan:** Develop a project plan that outlines the timeline, the milestones, and the deliverables of the project. This will help you to manage the project effectively and to ensure that it is completed on time and within budget.



5. **Define the roles and responsibilities:** Define the roles and responsibilities of each member of the project team. This will help you to ensure that everyone knows what is expected of them and that there is no confusion or overlap.
6. **Establish the budget:** Establish the budget for the project and allocate the resources accordingly. This will help you to ensure that the project is completed within the budget and that there are no unexpected costs.
7. **Negotiate the terms:** Negotiate the terms of the project with the stakeholders, including the scope, the timeline, the budget, and the deliverables. This will help you to ensure that everyone is on the same page and that there are no misunderstandings.
8. **Monitor the progress:** Monitor the progress of the project and make adjustments as necessary. This will help you to ensure that the project is completed on time and within budget.

**Task 2.** To prepare for an interview at an IT company for the position of Python programmer.

**Prompt** in Microsoft Copilot (Style “More Balanced”): I am a beginner programmer. I need to prepare for an interview at an IT company for the position of Python programmer. Suggest me the questions that can be asked to me at the interview.

**Answer** Microsoft Copilot: Sure, here are some common Python interview questions that you might find helpful:

1. What is Python? What are the benefits of using Python?
2. What is the difference between a list and a tuple in Python?
3. What is the difference between a set and a dictionary in Python?
4. What is the difference between a module and a package in Python?
5. What is the difference between a local variable and a global variable in Python?
6. What is the difference between a class and an object in Python?
7. What is the difference between a method and a function in Python?
8. What is the difference between a static method and a class method in Python?
9. What is the difference between a decorator and a generator in Python?
10. What is the difference between a deep copy and a shallow copy in Python?

To form negotiation skills, you can invite students to set Microsoft Copilot tasks to write an example of negotiations between the customer and the programmer on software product development, project tasks, etc. Such a task will allow students to get an example, based on which they will gain an understanding of the principles of negotiating with clients, and therefore will be able to develop negotiation skills.

**Task 3.** Prepare for negotiations with the customer or client.

**Prompt** in Microsoft Copilot (Style “More Balanced”): Write an example of negotiations between a customer and a web programmer regarding the creation of a web site for an online store.

**Answer** Microsoft Copilot: Here is an example of a negotiation between a customer and a web programmer regarding the creation of a website for an online store:

**Customer:** Hi, I’m interested in creating an online store website. Can you help me with that?

**Web Programmer:** Sure, I’d be happy to help. What are your requirements for the website?

**Customer:** I want a website that is easy to navigate, has a clean design, and is optimized for search engines. I also want to be able to accept payments online and manage my inventory.

**Web Programmer:** Great, those are all important features for an online store. Do you have any specific design or branding requirements?

**Customer:** Yes, I want the website to reflect my brand and be consistent with my other marketing materials.

**Web Programmer:** Understood. Based on your requirements, I estimate that the project will take about 3 months to complete and will cost around \$10,000. Does that work for you?

**Customer:** That sounds reasonable. Can you provide a detailed project plan and timeline?

**Web Programmer:** Absolutely. I'll put together a project plan that outlines the timeline, milestones, and deliverables of the project. I'll also include a breakdown of the costs and resources required.

**Customer:** Sounds good. Can we also discuss the terms of the contract?

**Web Programmer:** Of course. I'll prepare a contract that outlines the scope of the project, the timeline, the budget, and the deliverables. I'll also include a section on intellectual property rights and confidentiality.

**Customer:** That sounds good. Let's move forward with the project.

**Web Programmer:** Great, I'm looking forward to working with you.

To form problem-solving skills, you can invite students to set Microsoft Copilot tasks based on the described problem situation to offer a way to solve it and provide recommendations for its elimination. Such a task will allow students to get an example, based on which they will understand how to solve problems in a working city and, therefore, will be able to develop problem-solving skills.

**Task 4:** Learn how to solve issues at work by communicating with colleagues, team, and employers.

**Prompt** in Microsoft Copilot (Style "More Balanced"): You are a programmer. You work in an IT company. You feel that you are not trusted as a specialist in the company. After all, you are asked to write a list of tasks that, in your opinion, need to be done, but the customer did not allocate time for this. How to solve this problematic situation?

**Answer** Microsoft Copilot: You are a programmer. You work in an IT company. You feel that you are not trusted as a specialist in the company. After all, you are asked to write a list of tasks that, in your opinion, need to be done, but the customer did not allocate time for this. How to solve this problematic situation?

It can be frustrating to feel like you're not trusted as a specialist in your company. Here are some steps you can take to address the situation:

- 1 **Communicate your concerns:** Schedule a meeting with your manager or supervisor to discuss your concerns. Explain that you feel like you're not being trusted as a specialist and that you're being asked to do tasks that aren't feasible given the time constraints.
- 2 **Provide evidence:** Back up your concerns with evidence. Show examples of tasks that you've been asked to do that are outside the scope of your role or that require more time than you've been given.
- 3 **Propose solutions:** Offer solutions to the problem. For example, you could suggest that the company hire additional staff to help with the workload, or that the scope of the project be adjusted to better align with the available resources.
- 4 **Be open to feedback:** Be open to feedback from your manager or supervisor. They may have insights or suggestions that you haven't considered.
- 5 **Focus on building trust:** Focus on building trust with your colleagues and superiors. Be reliable, communicate effectively, and follow through on your commitments. Over time, you can demonstrate your expertise and build a reputation as a trusted specialist in your field.

To improve the ability to find a common language with colleagues and the client, you can invite students to set Microsoft Copilot tasks based on the described situation to provide advice on communication. Performing this task in an English class will allow students to get an example through which they gain an understanding of how to find a common language with colleagues and clients in the process of future professional activity, and therefore will be able to develop this skill.

**Task 5:** Learn to find a common language with colleagues and the client.

**Prompt** in Microsoft Copilot (Style “More Balanced”): You work in an IT company. Your customer is not happy that their order is taking too long. That you suggested that I answer him?

**Answer** Microsoft Copilot: You work in an IT company. Your customer is not happy that their order is taking too long. That you suggested that I answer him?

If a customer is unhappy about a delayed order, it's important to respond promptly and professionally. Here are some tips on how to respond to a customer complaint about delivery delay:

- 1 **Acknowledge the issue:** Start by acknowledging the customer's complaint and apologizing for the delay. This shows that you take their concerns seriously and are committed to resolving the issue.
- 2 **Explain the situation:** Provide an explanation for the delay, such as a backlog of orders or a shipping delay. Be honest and transparent about the situation, and avoid making excuses or blaming others.
- 3 **Offer a solution:** Offer a solution to the problem, such as a refund, a discount on a future purchase, or expedited shipping. Make sure that the solution is appropriate for the situation and that it addresses the customer's concerns.
- 4 **Follow up:** Follow up with the customer to ensure that the issue has been resolved to their satisfaction. This shows that you value their business and are committed to providing excellent customer service.

Here's an example of how you could respond to the customer:

Dear [Customer Name],

Thank you for bringing this to our attention. We apologize for the delay in your order and understand how frustrating this must be for you.

We experienced an unexpected backlog of orders due to a recent sale, which caused a delay in processing and shipping your order. We are working hard to get your order to you as soon as possible and appreciate your patience.

To make up for the delay, we would like to offer you a [refund/discount on a future purchase/expedited shipping]. Please let us know which option you prefer.

Again, we apologize for any inconvenience this has caused and appreciate your business. If you have any further questions or concerns, please don't hesitate to contact us.

Best regards, [Your Name]

To improve intercultural skills while learning English, future IT professionals can set the task of Microsoft Copilot to write tips on behavior during negotiations with international testators. Such a task will allow students to gain an understanding of another culture, based on which they will form intercultural skills.

**Task 6:** Get information on the numbers and conventions of representatives of other nationalities.

**Prompt** in Microsoft Copilot (Style “More Balanced”): I work in a Norwegian IT company. We plan to do a joint project with Chinese colleagues. I know we have cultural differences.

What would you advise me to do when I meet colleagues from China for the first time so that I don't seem rude?

**Answer** Microsoft Copilot: I work in a Norwegian IT company. We plan to do a joint project with Chinese colleagues. I know we have cultural differences. What would you advise me to do when I meet colleagues from China for the first time so that I don't seem rude?

It's great that you're thinking about how to approach your Chinese colleagues in a culturally sensitive way. Here are some tips that might be helpful:

- 1 **Be respectful:** Show respect for your colleagues by using their formal titles and last names, unless they ask you to use their first name. In Chinese culture, it's important to show respect for authority and seniority.
- 2 **Be patient:** Be patient when communicating with your Chinese colleagues. They may take longer to respond or may not be as direct as you're used to. This is because Chinese culture values harmony and avoiding conflict.
- 3 **Be aware of body language:** Be aware of your body language when communicating with your Chinese colleagues. Avoid pointing, touching, or standing too close, as these actions can be seen as aggressive or rude.
- 4 **Avoid sensitive topics:** Avoid discussing sensitive topics such as politics, religion, or human rights. These topics can be seen as controversial or offensive.
- 5 **Be open-minded:** Be open-minded and willing to learn about Chinese culture. Ask questions and show interest in your colleagues' culture and traditions.
- 6 **Be flexible:** Be flexible and willing to adapt to your colleagues' communication style. This will help you to build stronger relationships and work more effectively together.
- 7 **Take advantage of team building activities:** Take advantage of team building activities, birthdays, or other activities outside the office as a more informal way of connecting with your colleagues. This can help to build trust and rapport.

### 5.3. Five best AI tools for public speaking

In the realm of AI, the application of AI tools in public speaking marks a significant advancement. These tools offer practical solutions for enhancing speaking skills, addressing common challenges faced by speakers at all levels. By leveraging AI technology, these tools provide valuable insights into speech delivery, content organization, and audience engagement. Our exploration of some of the best AI public speaking tools will introduce a range of innovative platforms designed to improve various aspects of public speaking: Yoodli; Verble; Gabble; Virtual Orator; Orai. To improve public speaking skills in the profession of learning English, you can invite students to take advantage of a number of innovative platforms designed to improve various aspects of public speaking [49] namely:

1. Yoodli – an AI-driven public speaking coach that provides real-time feedback and analytics on speech delivery, style, and audience settings.
2. Verble – an AI speech-writing assistant that helps users craft persuasive and structured speeches through a chat-based interface and expert insights.
3. Gabble – an AI-powered communication coach that focuses on improving speaking and listening skills, offering personalized feedback and vocabulary enhancement.
4. Virtual Orator – VR simulator that replicates realistic public speaking scenarios, allowing users to practice in front of virtual audiences and record their performances.
5. Orai – an AI-powered app that offers interactive lessons and detailed speech analysis, aiming to boost confidence, clarity, and voice quality in public speaking.

Therefore, based on the proposed examples of using such an AI tool as Microsoft Copilot, it can be stated that AI tools can be used to form the soft skills of future IT specialists while learning English. In particular for the formation of such skills as communication, negotiation, problem solving, ability to find a common language with colleagues and clients, public speaking and intercultural.

## 6. Conclusions

As technological advancements continue to shape the landscape of education, there is growing recognition of AI tools' role in developing vital soft skills for IT students. As achieving the objectives set in this study allows us to equip pedagogues of higher education institutions with actionable tactics to direct students' efforts toward harnessing appropriate skills, we delved into the transformative potential of AI tools in developing the soft skills essential for the success of future IT professionals. For this, we stated three research questions, the answers to which we obtained in the process of the research in the following scope:

- (RQ 1). Artificial intelligence tools or tools with elements of artificial intelligence are used to develop communication skills in training future IT professionals. In particular, AI tools are used for developing critical thinking, problem-solving, communication skills, creativity, flexibility, and independent learning.
- (RQ 2). The survey results (appendix B) confirm that AI tools have a noteworthy function in learning English as a foreign language by IT professionals. People acknowledge AI tools as resources that assist in generating ideas and enhancing writing styles. At the same time, students are not confident in the use of AI tools in the learning process. They do not have the appropriate knowledge on how to apply AI to develop soft skills.
- (RQ 3). AI technologies contribute to the development of soft skills in English language learning. To do this, teachers can use the capabilities of chats using generative artificial intelligence technologies. Using the example of Microsoft Copilot, particular prompts were proposed that allow future IT specialists to develop such skills as communication, negotiation, problem-solving, finding a common language with colleagues and clients and intercultural. We also recommend developing public speaking skills using AI tools to improve the ability to communicate in business related themes (Yoodle, Verble, Gabble, Virtual Orator, Orai).

Within the current study, we did not consider all the aspects of using AI in education of future IT specialists. Further research intentions will disclose the effectiveness of applying defined approaches (e.g., tasks with Bing (Microsoft Copilot) or other AI chats, AI tools to improve the ability to communicate) to improve or develop soft skills.

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## Appendix A. Questionnaire

The survey was compiled using the research finding of Dakakni and Safa [48].

### *Types of AI tools*

Q1. Which tools (of those listed below) do you use most frequently in learning English as a foreign language?

#### *Response options*

- Bing
- Bard
- Microsoft Cortana
- Assistant Poe
- Chartbot GPT
- Grammarly
- Quillbot
- Quillbot in addition to Chat GPT
- none of them

### *Reasons for using AI tools*

Q2. What are the reasons for using AI tools?

#### *Response options*

- AI tools support my intention to learn the English language
- AI tools add more style and technique to my writing in English
- AI tools give me ideas for my study of the English language
- AI tools help me maintain high grades by getting creative ideas to help with my assignments or essays
- I do not use AI tools for any reason

### *Attitudes toward AI*

Q3. What is your opinion on AI tools and their use in learning English language?

#### *Response options*

- AI tools are beneficial
- I treat AI tools with mistrust and suspicion

Q4. Would you prefer to be taught the English language using AI teacher bots or human teachers?

#### *Response options*

- I prefer to have a bot as a teacher of English as a foreign language and replace a human teacher
- I prefer a human teacher

### *AI and ethical concerns*

Q5. Are you concerned about AI ethical issues?

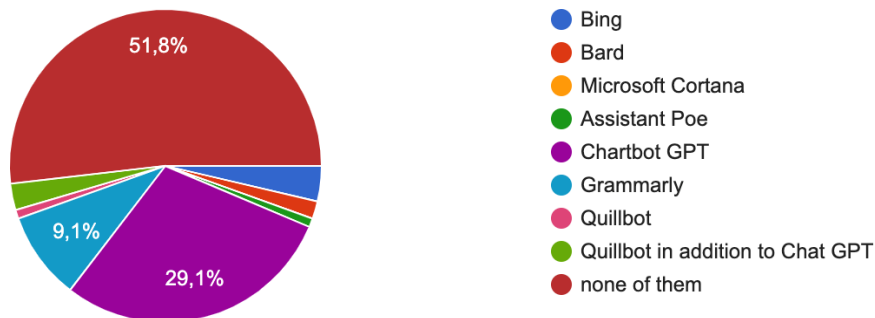
#### *Response options*

- Yes, I am. I do not use AI to help complete my assignments, taking into consideration the university's punitive measures
- No, I am not

**Appendix B. Questionnaire questions and students' choice**

*Types of AI tools*

Q1. Which tools (of those listed below) do you use most frequently in learning English as a foreign language?



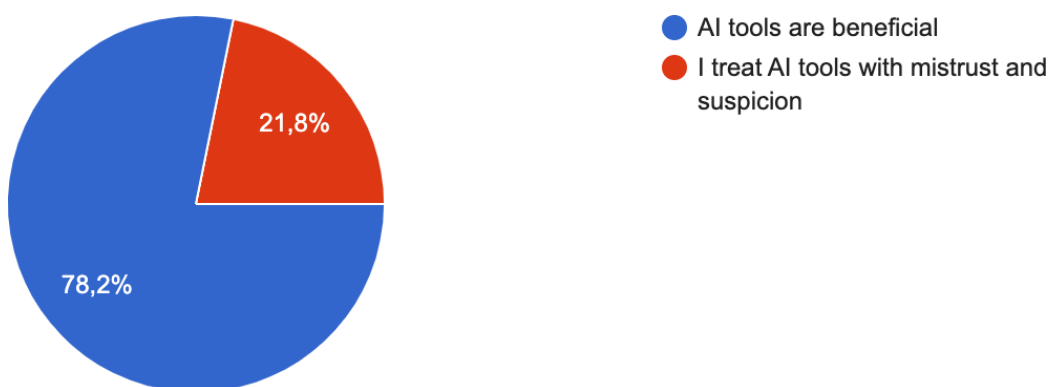
*Reasons for using AI tools*

Q2. What are the reasons for using AI tools?

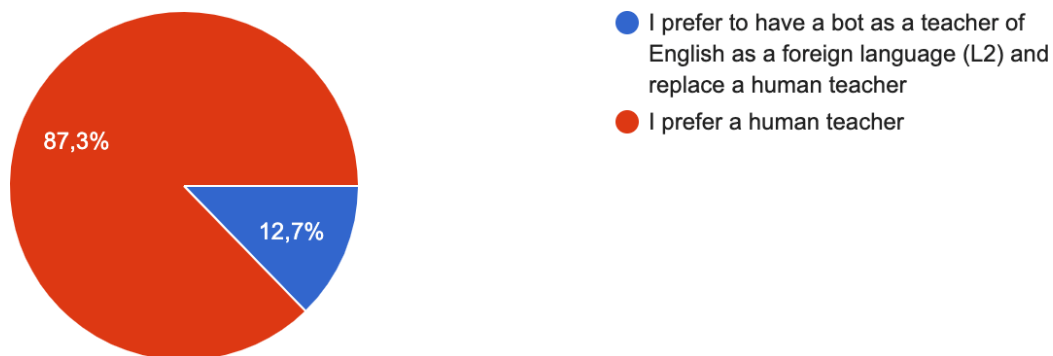


*Attitudes toward AI*

Q3. What is your opinion on AI tools and their use in learning the English language?

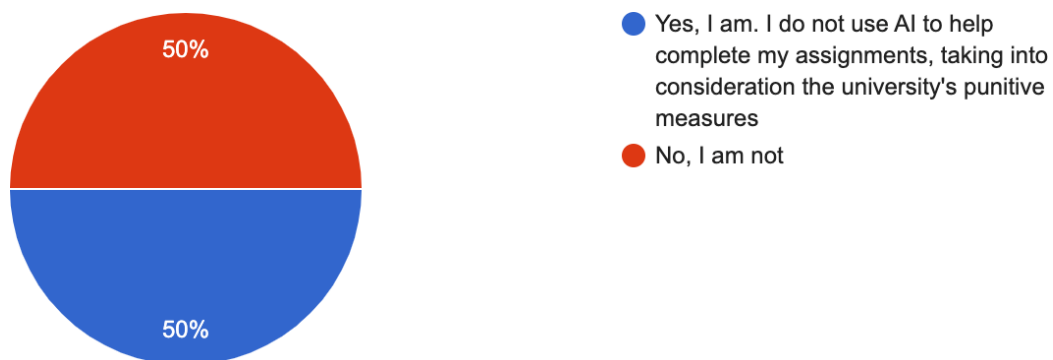


Q4. Would you prefer to be taught the English language using AI teacher bots or human teachers?



### AI and ethical concerns

Q5. Are you concerned about AI ethical issues?



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