ENHANCING CRITICAL THINKING THROUGH AI IN ESP: A CASE STUDY AT SUMY STATE UNIVERSITY

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Abstract: *The paper highlights the role of Artificial Intelligence (AI) in the process of critical thinking development in teaching English for Specific Purposes (ESP) to students of Psychology, Law and Medicine at Sumy State University. The more common AI-based tools become in the educational environment in general and in the process of teaching English in particular, the more they are changing the way students interact with information, build arguments and solve discipline-specific communicative tasks. This article describes how AI can be used for the development of critical thinking skills in ESP by modelling real-world scenario tasks, providing personalized feedback, and enabling reflection. However, the authors critically examine the risks of overreliance on AI technologies, including diminished analytical skills, and ethical implications. Drawing on the recent research and classroom-based examples, the paper offers a balanced view of the integration of AI into ESP teaching, emphasizing the importance of pedagogical strategies that harness the power of AI while maintaining a strong emphasis on human-centered and critical language use.*

Keywords: *education; Artificial Intelligence (AI); English for Specific Purposes (ESP); critical thinking; pedagogical strategies;*

Introduction

In the contemporary context, the educational process requires continuous adaptation in response to technological advancements and social transformations. The transition to new forms of learning, specifically distance learning, calls into question the pertinence of those principles, forms and technologies of learning that were previously effective in meeting educational needs. The appearance of Artificial Intelligence presents new challenges for teachers, highlighting the need for a comprehensive reappraisal of the entire educational system.

It is important to accentuate that these changes pertain not only to organizational and pedagogical foundations but also require a focus on the participants in the learning process. Technological advancements have influenced student motivation, prompting increasing inquiries regarding the significance of acquiring traditional knowledge, its practical applicability and the overall necessity of higher education. These questions accentuate the

necessity of applying critical thinking methodologies, which promote a comprehensive examination of both the limitations and benefits of integrating Artificial Intelligence into university education (Stanford Encyclopedia of Philosophy).

Significant contributions to the study of critical thinking have been made by philosophers such as M. Black, J. Dewey, E. Glaser, R. Peters, B. Russell, G. Ryle, and I. Scheffler. The theory of critical thinking in the field of science has been explored by scholars including H. Butcher, L. Brunner, M. Johnson, M. Lanni, S. Loup, M. Maas, and L. White. The impact of Artificial Intelligence on students' learning experience was studied by L. Frank, P. Kaledio, H. Karimi, S. Khawaja, M. M. Rahman, A. Robert, G. Van Den Berg, Y. Watanobe, and Y. Walter.

Research Objectives

The aim of this article is to analyze the impact of critical thinking in the application of Artificial Intelligence by students in English for Specific Purposes (ESP) classes. The study of Artificial Intelligence and the theory of critical thinking incorporates both theoretical and empirical methods, including philosophical methodology, a systematic approach, the method of pedagogical observation, system-structural analysis and comparative analysis.

Contemporary education faces a multitude of challenges, with Artificial Intelligence representing one of the most prominent. This key objective of critical thinking is to develop students' capacity to analyze information systematically and utilize it effectively. Although AI has a substantial impact on human development, not all students possess the requisite skills to critically evaluate existing information. Educators play a crucial role in guiding students toward a balanced and purposeful use of these technologies as both tools and sources of information. To accomplish this, the integration of critical thinking strategies is imperative (Brunner, Suddarth 336-339).

The impact of Artificial Intelligence on students' learning experience was investigated by P. Kaledio, A. Robert, L. Frank (Kaledio, Robert, Frank), H. Karimi, S. Khawaja (Karimi, Khawaja 2405-2408), M. Rahman, Y. Watanobe (Rahman, Watanobe 4-6), G. Van den Berg, E. du Plessis (Van den Berg, Du Plessis 10-12), Y. Walter (Walter 20-22), A. Al-Tamimi, W.R.A. Bin-Hady (Al-Tamimi, Bin-Hady 55-57). Exploring AI tools in English for Specific Purposes courses was studied by N. Avsheniuk, N. Seminikhyna, L. Ruban, Y. Sviatiuk (Avsheniuk, Seminikhyna, Ruban, Sviatiuk 3-7), M. Alshater (Alshater 10-12), M. Chaudhry, M. Cukurova, L. Rose (Chaudhry, Cukurova, Luckin, Rose).

An examination of critical thinking and its essential role in the development and preparation of university students is a necessary starting

point. The systematic application of critical thinking emerged with its theoretical foundations established by J. Dewey (Dewey 50-60), W. James Potter (James Potter 88-90), M. Lipman (Lipman 4-5) and L. White (White 2, 10-15). American society was among the first to critically reflect on information and knowledge, highlighting the importance of self-evaluation, critical assessment of one's judgments, comprehension of acquired knowledge and reflection on established facts.

The core principle of critical thinking lies in the development of hypotheses that facilitate objective reasoning and the critical evaluation of judgments concerning their validity and accuracy. The significance of critical thinking within the scientific domain cannot be overstated. University students must consistently engage in analytical reasoning and information assessment. Although various educational methodologies and instructional approaches foster self-development and independent learning. The integration of modern technologies may, at times, have an adverse effect on motivation acquire knowledge (Lipe, Beasley 3-10).

According to the survey of third-year students majoring in Psychology, Law and Medicine at Sumy State University just 60 percent from 360 students are adequately prepared for continuous self-improvement, which necessitates an ongoing process of information retrieval, engagement with diverse sources, rigorous fact-checking, and the pursuit of objective truth. This process is most effectively undertaken by individuals committed to intellectual development, the acquisition of reliable knowledge, and both personal and academic growth. Consequently, a critical question appears what the role of pedagogy plays in fostering these essential principles within students.

It is believed that the concept of critical thinking predates philosophy. This is supported by the works of B. Taylor-Bacon, who notes that in Western Europe, philosophers critically evaluated their own theories and statements. In ancient Greece, Plato demonstrated the logical foundation of dialogical thinking, originally introduced by Socrates. Aristotle, a student of Plato, refined logical analysis to a level that remained in use throughout the 20th century (Thayer-Bacon 30, 45-55).

S. Manganelli, E. Cavicchiolo, L. Mallia, V. Biasi, F. Lucidi and F. Alivernini demonstrate the need to use critical thinking in student education. As critical thinking is the only cognitive strategy which proved to have a significant impact on academic performance. Psychologists suggest that autonomously motivated students tend to achieve better academic performance by using critical thinking (Manganelli, Cavicchiolo, Mallia, Biasi, Lucidi, Alivernini 470-488).

B. Golden remarks that critical thinking is a core component of higher education teaching and learning across multiple disciplines. Moreover, supporting students to develop critical thinking skills can be challenging due

to the prior experience of education which may have emphasised rote learning and due to the high volume of approaches available to choose from as an educator (Golden 949-969).

The impact of critical thinking on future careers is confirmed by studies M.C. Lawasi, V.A. Rohman, M. Shoreamanis (Lawasi, Rohman, Shoreamanis 360-370), L. Murawski (Murawski 25-30), R. Cossu, I.T. Awidi, J. Nagi (Cossu, Awidi, Nagy 46), W. Gosner (Gosner), R. Jaenudin, U. Chotimah, Farida, Syarifuddin (Jaenudin, Chotimah, Farida, Syarifuddin 11-19), Jin, Ji (Jin, Ji 936-938).

L. Murawski indicates that critical thinking skills learned in the classroom have an impact on future learning in the workplace. Once learned, these skills encourage workers to think deeply and critically about working issues and their individual roles in enhancing corporate culture while adding value to the products or service that an organization provides to the community or to the world (Murawski 25-30).

The above information was the impetus for conducting research and determining the impact of critical thinking when using Artificial Intelligence in student learning. Our study was conducted among third-year students majoring in Psychology, Law and Medicine at Sumy State University during the study of the elective course "English for Specific Purposes". This discipline has the following tasks: (1) to provide students with the opportunity to participate in a continuous cycle of learning English during the entire period of study at the master's level of higher education; (2) to acquire systemic special knowledge and skills for the purpose of preparing for the English language tasks of the professional direction of the exam; (3) to ensure the opportunity to plan and prepare for their further scientific careers during graduate studies.

Expected results of the discipline:
- learn the lexical units necessary for understanding texts;
- analyze independently thematic information;
- discuss the problems of science;
- explain the responsibilities of future specialist;
- be able to analyze the information, be critical;
- know the peculiarities, details of discussed questions;
- analyze and use information for professional purposes.

The role of discipline in developing social skills:
- ability to use information and communication technologies;
- be critical and self-critical;
- be able to analyze, evaluate and objectively interpret information, make judgements and solve complex problems through logical reasoning and evidence-based decision-making (critical thinking);
- identify, pose and solve problems;

- opportunity to abstract thinking, analysis and synthesis;
- work well within different teams by valuing diverse perspectives and supporting shared goals through collaboration, compromise, and constructive conflict resolution (teamwork);
- be prepared for interpersonal communication.

Teaching and learning strategies: (1) opportunity to abstract thinking, analysis and synthesis; (2) have skills in using information and communicative technologies; (3) be able to speak English or any other foreign languages; (4) ability to search, adapt and analyze information from different sources; (5) be critical and self-critical; (6) act socially responsible and consciously; (7) save and magnify ethical, cultural, scientific values and achievements of society which based on the history and patterns of development of the subject, its meaning in the general system of knowledge about nature and humanity, technology and innovations, use different types and forms for active recreation and leading a healthy lifestyle.

The survey was conducted among 360 students using the Watson-Glaser method of assessing critical thinking (Critical thinking test; Watson-Glaser test). The methodology consisted of ten questions. The students were suggested to answer the questions based on five sections: argument analysis, assumptions, deduction, conclusions, and information interpretation (Table 1). The survey scale has three levels: low (0 – 30 %), medium (31 – 69 %) and high (70 – 100 %).

Category	Psychology	Law	Medicine
Analysing Arguments	70 %	55 %	60 %
Assumptions	56 %	30 %	63 %
Deductions	60 %	57 %	30 %
Inferences	62 %	59 %	50 %
Interpreting Information	65 %	70 %	65 %

Table 1. Research results at the onset of the experiment

The experiment demonstrated the importance of updating methodologies to enhance critical thinking skills in the groups involved in the study. During the experiment, we introduced a set of exercises and critical thinking techniques based on the use of Artificial Intelligence.

In the process of teaching students using Artificial Intelligence, we focused on five phases of critical thinking that demonstrate the importance of using all of them to learn the discipline "English for Specific Purposes" perfectly. The phases are presented by Stanford Encyclopedia of Philosophy:

- prediction – the brain searches for possible solutions to a given situation;
- reflection – contemplating the problem that needs to be resolved;
- hypothesis formulation – proposing a hypothesis for the study and analysis of an unresolved issue;
- cause identification – determining the underlying reasons behind a given situation;
- hypothesis testing – verifying the hypothesis through available methods and practical application (Stanford Encyclopedia of Philosophy).

We explored the application of five phases of critical thinking in teaching the discipline "English for Specific Purposes" during our experiment.

Prediction. The first phase is frequently utilized during various warm-up exercises at the beginning of a lesson. Throughout our experiment, we implemented this method using Artificial Intelligence. AI employs different proverbs, expressions, and myths, requiring students to explain their meanings. Describing and discussing proverbs pose challenges for students. Firstly, proverbs often incorporate idiomatic expressions or phrasal verbs, making comprehension difficult. Secondly, these issues can be open to interpretation, leading to diverse opinions among students regarding their meanings.

Reflecting on a problem to be solved. The second phase is predominantly applied in solving situational tasks. The instructor formulates a prompt for the AI to generate a scenario with a clearly defined resolution. Students then engage in reflection, discuss possible responses, and determine specific solutions.

Formulating hypotheses. The third phase was applied in English for Specific Purposes classes with the integration of AI for third-year students specializing in Psychology, Law and Medicine. For instance, the instructor presents a statement via AI, and students are tasked with proposing potential solutions, engaging in discussions, sharing opinions, and analyzing responses. In decision-making, they must consider all potential drawbacks and advantages. It is worth noting that verifying hypotheses may sometimes pose challenges, especially when practical validation is required but not always feasible. AI can be instrumental in assisting students in confirming their conclusions.

Identifying the causes of a given situation. The fourth phase is crucial in determining the underlying causes of a situation. The instructor submits a prompt to AI to generate hypotheses regarding the origins of a given problem, and students are responsible for identifying key causal factors. AI aids students in validating their reasoning and identifying essential facts.

Testing the Hypothesis in Practice. The final phase involves verifying the formulated hypotheses through available means. Having completed the preceding four phases, students can assess the accuracy of their statements and

ideas with the assistance of AI. This method facilitates analysis and evaluation, allowing students to validate their conclusions effectively.

By structuring lessons around the five phases of critical thinking, we employed communicative tasks. The following examples illustrate the application of AI in this context.

Implementation of communicative tasks. When engaging in communicative exercises, students can immerse themselves in hypothetical situations. In the English for Specific Purposes classes, students frequently complete the tasks: "You are a lecturer at a university. Your task is to explain to students the key indicators of depression, including methods, technologies, and treatments"; "You have an interview. Your task is to be prepared to discuss the rights and duties of a person; "Imagine you are a doctor in the therapeutic unit. A patient has cold symptoms. Your task is to ask about their symptoms, duration of illness, concerns, workplace, and occupation".

For the students, the ability to analyze their actions and evaluate situations critically is essential. We prove that students should integrate artificial intelligence with critical thinking theory and the theory of holism. The holistic approach enables an objective assessment of a situation by analyzing a problem. In foreign language courses, this can be observed in dialogical speech activities related to topics such as: "Personality and deviant behaviour", "Modern trends in business Law and process", "Doctor and patient", "Intellectual property rights", "Communication with difficult patients", "First aid", "The practice of resolving disputes in the field of intellectual property", "Work in the therapeutic / surgical / infectious / emergency / pediatric / cardiovascular / respiratory units", among others.

Critical thinking involves a purposeful, self-regulated assessment of a situation. Its fundamental principles include observation, interpretation, analysis, inference, and evaluation (Paul, Elder 191-192).

The critical thinking methodology in student learning comprises seven key methods:

1. Encouragement of creativity
2. Motivation for self-exploration
3. Brainstorming
4. Systematization and analysis
5. Comparison
6. Contextualization
7. Grouping

The premise of our study *is brainstorming*. This method is widely employed in pedagogy. However, it is important to confirm that its application proves to be effective in teaching students of any specialization and at any academic level. In our experiment, brainstorming was utilized in conjunction with artificial intelligence. During the English for Specific Purposes classes,

tasks were introduced that required both theoretical knowledge of the respective specialty and proficiency in active vocabulary and grammatical accuracy. With the assistance of Artificial Intelligence, cognitive questions were presented to students. They were required to provide prompt responses to questions related to professional topics. Brainstorming stimulates student engagement, fosters creative expression, facilitates teamwork, enhances the alignment of ideas, and aids in addressing both theoretical and practical scenarios. This method enables the generation of diverse ideas through collaborative efforts within the entire group of students, ensuring that each session takes place in an active and dynamic atmosphere.

Brainstorming encompasses numerous subtypes that can be effectively employed in preparing future specialists during English language courses. One such method is brainstorming with idea evaluation. For instance, the instructor presents a case study along with potential solutions generated by Artificial Intelligence. Students then engage in discussions, critically analyzing both the advantages and disadvantages of the proposed solutions. This approach allows for constructive criticism as students evaluate and deliberate on all available options. Additionally, an essential advantage of this method is the active participation of each individual student – more perspectives lead to a more substantive and structured discussion. This method demonstrated high effectiveness throughout our experiment.

Secondly, the method of hierarchical structuring serves as an engaging approach to executing tasks such as expanding synonym sets, working with antonyms, generating associations, and promoting group collaboration. The verification of synonyms, antonyms, and associations is facilitated through Artificial Intelligence. The primary objective of this method is to ensure the involvement of all students, encourage a creative approach to task completion, and uphold the principle of equality among all participants. The fundamental rule of this method is that each student must express their opinion in turn, with no opportunity to contribute out of sequence.

Brainstorming in written form allows for an individualized approach to each student, which is explained by the complete absence of student interaction in task completion. This method is particularly effective for creative tasks; for instance, artificial intelligence provides a question, and students must describe the key advantages and disadvantages of a specific situation. This approach enables immediate verification of the accuracy of students' reasoning.

The second stage of the critical thinking methodology involves fostering *creativity*. This method includes motivating students toward the creative application of their knowledge. Every instructor working with students can develop their creative potential through communicative tasks. Additionally, the implementation of heuristic approaches enriches the entire

pedagogical process. During the experiment conducted in English language classes, instructors presented students with AI-generated tasks such as: "Imagine yourself as a doctor / lawyer / psychologist, provide recommendations or explain the best approach to a given scenario". This method allows instructors to objectively assess all students. It is particularly effective for written assignments, as well as monologic and dialogic speech exercises. However, when fostering students' creative potential, it is important to acknowledge that providing examples or templates for specific tasks does not always have a purely positive effect. While examples can sometimes help guide students toward achieving the instructor's intended goals, standardized templates create equal task conditions for all students, making task performance quality dependent on students' abilities, skills, and competencies. A potential drawback of unrestricted task execution is that it provides students with great creative freedom.

Another method in the critical thinking strategy is *motivation for self-exploration*. This method enables students to better understand their strengths and weaknesses and to demonstrate their abilities in both usual and creative tasks. The core idea of this method lies in the collaboration between teacher and students. During our experiment, Artificial Intelligence was utilized, allowing for an unpredictable implementation of the experiment. The primary focus of this method is cooperation and the realization of students' full potential. Before the using of Artificial Intelligence, a teacher was not merely a source of knowledge but also a consultant, an individual with extensive expertise, creativity, and readiness to teach in a non-authoritarian manner. However, modern technologies describe the necessity of a complete restructuring of the education system. Teachers must be prepared to provide students with a full spectrum of opportunities for self-realization, avoiding the imposition of their own opinions, instead offering choices and allowing students to make independent decisions. Thus, when students face difficulties in completing tasks or understanding new material, the best approach is not to provide straightforward explanations or direct answers. A more effective strategy involves offering guidance and relevant information while allowing students to seek the correct answers, develop analytical skills, and independently explore solutions to their questions.

The students must always be prepared to seek the truth, as there is a lot of information, ranging from modern sources and outdated facts to myths and misinformation. Artificial Intelligence has both positive and negative ides. Its main advantage lies in providing access to information. However, the most significant is that students may become confident on readily available information, leading to a decline in critical thinking skills. Negative side is unwillingness or inability to analyze information independently. Moreover, it is important for students to develop the ability to work effectively with

information. The aim of a teacher is to teach students how to learn by offering a various range of perspectives without formidable limits or spreading misinformation.

This issue is particularly relevant for senior students who already possess foundational theoretical knowledge. It is important to acknowledge that recent changes in science and education have highlighted the need for a reassessment of the entire education system and the necessity of delivering high-quality knowledge. As we observe, learning can now take place with just a single smartphone, serving as a gateway to online education. The authority of teachers has decreased compared to five or ten years ago. Students must be truly engaged in the learning process, making it imperative for lessons to be structured in a way that motivates active participation. It is no longer adequate for students to simply attend a lecture, which they can easily read or listen to as an audio recording. Instead, the aim should be to engage with a teacher to get knowledge, benefit from their expertise, and receive an objective evaluation of the subject matter.

Systematization and analysis represent another crucial stage in applying the theory of critical thinking during classes of English for Specific Purposes. The method of collecting and evaluating information was an integral component of our experiment. It is important to note that when working with various strategies and implementing all forms of learning activities, these approaches were consistently linked with the need to systematize and analyze information.

In English for Specific Purposes classes students are provided with opportunities to evaluate foreign sources, explore international experience, engage with professional English-language narratives, and familiarize themselves with authentic texts, audio, and video materials. This enables them to make well-founded conclusions.

Comparison method, including the use of Artificial Intelligence, allows learners to stay informed about recent developments in science, read original articles by renowned scholars and leading professionals, follow blogs by international colleagues, and communicate with them via social media or email. Such experiences are possible if students possess both foreign language proficiency and critical thinking skills. Notably, the most valuable aspect of this approach is the ability to analyze a wide range of information sources and critically interpret and process that information. Critical thinking, particularly in the digital field, brings learners closer to professionals in their field, fosters progressiveness, and enhances adaptability to change.

During the experiment, excerpts from well-known films and TV series were identified through AI tools and selected for their thematic relevance. This contributed to the systematization of acquired knowledge and international experience. Such an approach positively impacts students' information

perception by offering a non-traditional learning format. Moreover, it enables an objective assessment of the strengths and weaknesses of foreign professionals, as video materials often reflect communicative competence, respectfulness, empathy, and overall professional behaviour.

In our experiment within English for Specific Purposes, students were assigned tasks requiring them to analyze word combinations and categorize them accordingly. These expressions were pre-generated using Artificial Intelligence, and students had to classify them based on distinct systems or specific criteria. This required students to systematize the information and organize it into logical groups.

The method of comparison was also employed, indicating the implementation of a comparative approach in foreign language teaching. The method of comparison helps learners critically evaluate the strengths and weaknesses of various situations. This method complements systematization and analysis, although subjective judgment remains a potential limitation. When applying this method, the instructor's role is to provide students with an equal amount of information without expressing personal prejudgment. This ensures an objective evaluation process. Furthermore, the comparative method is essential for studying any system or group: by analyzing core features, students identify key similarities and differences.

Contextualization is a vital method in any professional practical activity. It helps bridge the gap between one's perception of a situation and its actual state. In the experiment, AI-generated situational tasks were offered to students, who were required to explore multiple solutions and critically evaluate each option. Such analysis helps students develop an objective attitude toward their knowledge and skills, as well as refine their ability to assess and respond professionally to various real-life scenarios.

Grouping (group work or collaborative learning) is a method that unites students in pursuit of a common academic goal. This technique is basically connected to teamwork and problem-solving. However, group work does not always meet the instructional tasks due to factors such as students' inability to cooperate effectively or challenges in establishing interpersonal relationships. Leadership necessarily originates within groups, sometimes in the form of one individual or more. Nonetheless, group assignments promote in-depth analysis of the topic, support collective decision-making, and allow students to learn from one another's perspectives. During the experiment, AI-generated rhetorical questions were posed to teams. Students shared ideas, and after discussion, the correct answers were revealed, promoting a collaborative and reflective learning environment.

Below, we present a series of exercises designed for third-year students enrolled in the English for Specific Purposes classes in the fields of Psychology, Law and Medicine.

1. *Application of the "True and False Statements" Exercise*

Students are presented with the most common statements related to the lesson topic, which the instructor generates using Artificial Intelligence. They are required to assess whether the statement is accurate, evaluate the reliability of the facts, explain why a particular statement may be incorrect, and respond to questions from their peers.

2. *Application of the "Mind Map" Exercise*

This is one of the most popular exercises for developing critical thinking. Using situational words suggested by Artificial Intelligence, students create associative mind maps on the given topic. This approach prevents students from relying on pre-prepared patterns or standard answers provided by artificial intelligence. The teacher forms the initial prompt, while the AI generates a set of words or phrases that students can use to develop their mind maps. In foreign language lessons, this exercise is particularly valuable as it promotes analysis, interpretation, and identification of key aspects of the topic under discussion.

3. *Application of the "Know–Want to Know –Learned" Table Exercise*

This exercise allows students to formulate prompts for Artificial Intelligence regarding the studied topic. The prompt may have specific answers or be rhetorical in nature. Moreover, students classify them into three sections: what they already know, what they want to learn, and what they have learned. This method encourages a critical review of the material. This type of exercise is notably useful for preparing for modules, assessments, and exams, as it helps students identify topics for improvement and recognize their strengths and weaknesses.

4. *Application of the "Take a Position" Exercise*

During the lesson, the teacher presents a disputable topic for discussion. Students express and debate their opinions. Using Artificial Intelligence, they check the accuracy of their arguments and submit their reasoning for confirmation. This exercise allows students to be divided into different groups, motivating various prospects in the discussion.

5. *Application of the "Idea Basket" Exercise*

This exercise involves small-group collaboration, where students participate in competitions based on speed and ingenuity, facilitated by Artificial Intelligence. AI is used as a tool for generating random questions. Students work in teams, record their responses in a shared "idea basket", and subsequently use Artificial Intelligence to verify the correctness of their statements.

The use of methods and exercises aimed at developing critical thinking has demonstrated its effectiveness throughout the entire course of the experiment. While working with Artificial Intelligence has become a common practice, its application should be directed toward highlighting its positive

aspects. In addition, it cannot be claimed that the use of Artificial Intelligence leads exclusively to positive outcomes. Students are not always prepared for self-reflection or for adopting a critical approach to information analysis.

Contemporary trends and research methods reflect the growing accessibility of information; however, it is essential to acknowledge that such information is often superficial. Deeper investigation requires the use of various search tools and a commitment to objectivity. One of the main advantages of Artificial Intelligence lies in its speed, students can receive immediate answers to their prompts. Nevertheless, the issue of motivation remains unresolved. In the future, the integration of AI may lead to a decline in student motivation, and traditional formats such as lectures may gradually disappear. Students may no longer perceive a teacher as a central figure in the learning process. Such challenges are increasingly faced by educators across all levels of education.

At the end of the semester, we conducted a repeat survey which was conducted among 360 students (the same groups) using the Watson-Glaser method of assessing critical thinking (Critical thinking test; Watson-Glaser test). The methodology consisted of ten questions. After completing the course of English for Specific Purposes students took a test consisting of open-ended questions: (1) What are the possible consequences of accepting this statement? (2) Is this information relevant? (3) Would my opinion change if I knew more? (4) What emotions are influencing my judgment? (5) Are there other ways to solve the problem? (6) What are the possible solutions? (7) What are the consequences of each solution? (8) Which solution best aligns with my values? (9) Do I have enough information to make a decision? (10) Are there risks associated with this solution?

During the semester, technologies, methods, and exercises were used to teach students how to work with new means of information. Each technique was based on Artificial Intelligence. The application of Artificial Intelligence occurred at different stages of the experiment. Students were able to obtain information, process it, analyze it, objectively approach problem solving, work in a group to solve situational problems, and be critical of information selection. Critical thinking is a skill that is basic and mandatory in the 21st century. For young people to be able to develop and effectively solve the tasks set, students must be critical and conscious about the information they receive. This applies not only to Artificial Intelligence. This accessibility is a modern challenge related to information processing and its use.

After analyzing the repeated survey, we can conclude about the effectiveness of the teaching methods that were applied during the study of the discipline "English for Specific Purposes". The results presented below (Table 2).

Category	Psychology	Law	Medicine
Analysing Arguments	80 %	70 %	70 %
Assumptions	72 %	53 %	66 %
Deductions	65 %	72 %	70 %
Inferences	74 %	65 %	78 %
Interpreting Information	68 %	77 %	80 %

Table 2. Results of the study among students at the end of the experiment

The table shows the responses of students from three specialties: Psychology, Law and Medicine. The first indicator "Analyzing Arguments" changed among students of the specialties of Law and Medicine, namely, it became at a high level, while in the specialty of Psychology the variable remained at a high level, which demonstrates the appropriateness of the methods used. The "Assumptions" indicator has the great dynamics, as at the end of the experiment this indicator is average or high. The "Deductions" indicator is the best result, as in both Law and Medicine specialties this indicator reaches a high level of critical thinking formation. The "Inferences" indicator rose in both specialties, which is extremely important in the formation of critical thinking in students. At the end of the experiment, the "Interpreting information" indicator reached a high level in the Law and Medicine specialties.

Conclusion
The AI-task-based tools in the process of teaching and learning English for Specific Purposes (ESP) has demonstrated significant potential for the development of critical thinking skills of Psychology, Law and Medicine students. Applying AI-based tools for teaching English, analysing and solving real-life scenario problems, teachers can create a more dynamic, personalized and cognitively complex learning environment that goes beyond traditional methods of teaching English. This study emphasizes that AI not only helps to develop language competence, but also encourages students to evaluate information critically, argue facts effectively, and go deeper into the professional discipline. Further research should examine the long-term impact of AI on students' cognitive development and study best practices for integrating new technologies into the process of teaching and learning English for Specific Purposes. Ultimately, the development of critical thinking with the help of AI-based tools in the English language of professional direction is

a promising direction for preparing students for orientation in a complex professional environment with linguistic and intellectual flexibility.

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