



PROFESSIONAL EDUCATION

UDC 378:372.881.1:001.891

DOI <https://doi.org/10.5281/zenodo.15332553>

Core Skills for Developing Critical Thinking in ESP Teaching Through Reading

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Прийнято: 17.04.2025 | Опубліковано: 29.04.2025



Abstract. *This article explores the importance of integrating critical thinking (CT) into reading instruction within the framework of English for Specific Purposes (ESP), particularly for telecommunications students. The authors argue that modern educational needs require a shift in teaching approaches to foster core CT skills such as interpretation, analysis, evaluation, inference, explanation and self-regulation.*

Central to this approach is reading as a tool not only for language acquisition but also for developing cognitive abilities, thereby supporting intellectual growth and professional development.

Building on earlier research and drawing from the insights of respected scholars, the article illustrates how a CT model can be tailored to fit the needs of technical education. It showcases a range of practical, telecom-focused reading tasks, such as analyzing technical articles, interpreting infographics, predicting data trends, evaluating competing technologies and engaging in collaborative reading exercises. These activities are designed to enhance students' abilities to critically assess texts, make well-founded judgments, evaluate technical claims, and communicate complex ideas clearly.

Particular attention is given to fostering critical thinking skills through reading that means encouraging learners to evaluate their reading strategies, pose critical questions, and adjust their comprehension techniques according to genre and purpose. By aligning CT instruction with specific content areas, the approach not only increases learner engagement but also prepares students for effective communication and decision-making in real-world professional contexts.

Thus, the integration of critical thinking into ESP reading instruction enriches students' understanding of specialized texts and strengthens their ability to engage in reflective, analytical, and autonomous learning. Ultimately, this contributes to their success both in academic and industry-specific environments.

Keywords: *critical thinking (CT), English for Specific Purposes (ESP), core skills, reading instruction.*



**Основні компоненти розвитку критичного мислення у навчанні
англійської мови для професійного спілкування через читання**

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Анотація. У статті досліджується важливість впровадження критичного мислення (КМ) у процес навчання читанню в контексті англійської мови для спеціальних цілей (ESP), зокрема серед студентів телекомунікаційних спеціальностей. Автори наголошують, що сучасні освітні реалії потребують переосмислення методів навчання з метою розвитку таких ключових елементів КМ, як інтерпретація, аналіз, оцінювання, інферування, пояснення та саморегуляція.

У центрі уваги — читання як засіб формування не лише мовних, а й когнітивних компетентностей, що сприяють інтелектуальному зростанню й професійному становленню.

Спираючись на попередні дослідження і роботи провідних науковців, автори демонструють, як модель КМ може бути адаптована до потреб технічної освіти. Запропоновано низку практичних завдань, орієнтованих на телекомунікаційну тематику: аналіз технічних статей, порівняння інфографіків, інтерпретація статистичних даних, оцінка достовірності джерел, прогнозування на основі текстових фрагментів, створення концептуальних карт і участь у рольових іграх. Ці завдання спрямовані на розвиток вмінь студентів критично аналізувати інформацію, робити обґрунтовані висновки, оцінювати технічні пропозиції та пояснювати складні поняття в доступній формі.

Особлива увага приділяється формуванню критичного мислення через читання, що передбачає вміння оцінювати власні стратегії розуміння, ставити запитання до тексту та адаптувати підхід до читання залежно від жанру й мети. У такий спосіб, поєднання критичного мислення з ESP-дискурсом не лише активізує пізнавальну діяльність студентів, а й готує їх до ефективного функціонування в професійному середовищі.

Отже, інтеграція критичного мислення в навчання читанню ESP збагачує розуміння студентами спеціалізованих текстів і зміцнює їхню здатність брати



участь у рефлексивному, аналітичному та автономному навчанні. Вреши-реши, це сприяє їхньому успіху як в академічному, так і в галузевому середовищі.

***Ключові слова:** критичне мислення (КМ), англійська мова для професійного спілкування (ESP), основні компоненти, навчання читанню.*

Problem setting. Critical thinking (CT) has become a fundamental part of education, because it is an essential skill in today's globalized world, where navigating complexity and interconnectivity are the keys to survival. In the realm of English for Specific Purposes (ESP) teaching, integrating CT skills is crucial, as this approach focuses on language learning tailored to specific professional or academic fields. Since students engage with specialized content relevant to their careers or studies, developing CT through reading instruction becomes a vital foundation for effective communication and problem-solving.

Unfortunately, traditional English teaching methods have often leaned heavily on rote memorization, vocabulary acquisition and grammatical accuracy neglecting the importance of higher-order thinking. This gap poses a significant challenge for ESP learners, who must tackle complex texts, formulate well-reasoned arguments and adapt their communication styles to various professional contexts. Without targeted instruction to foster CT, students may struggle to engage with and respond to the demands of their professional lives.

Ultimately, CT empowers learners to analyze, evaluate, and synthesize information, enabling them to make informed decisions and articulate their ideas clearly and precisely. By incorporating CT into ESP curricula, we can better prepare students to navigate complex texts, build compelling arguments and communicate effectively within their fields in our interconnected world.

Analysis of recent researches and publications. CT is an essential skill in both education and professional growth, and recent researches have highlighted reading as a key tool for enhancing this ability. So, in this paper we present an analysis of



important findings and trends from the latest publications and studies regarding the core competencies needed to develop CT through this activity.

Grasping the essence of CT in education reveals that cultivating this skill is crucial for an individual's successful socialization in today's information-driven society. CT is closely tied to social thinking, as it fosters effective interactions in complex social situations where discussing various issues, exchanging opinions and debating are necessary for problem-solving and finding solutions. The development of CT is viewed as a comprehensive process that leads to improved communication skills, social thinking abilities and autonomy among other benefits [1].

The report [2] outlines a structured approach to understanding and nurturing CT skills within educational environments. This model emphasizes a systematic development of essential skills such as analysis, interpretation and reasoning. The authors argue that critical thinking should be integrated into the design of tasks, assessments and teaching methods. By defining clear stages in the development process, the model provides practical guidance for educators to align their teaching styles with the needs of their students. Additionally, it highlights the significance of reflection and self-assessment in developing CT skills, which parallels the cyclical nature of reading in ESP instruction.

ESP learners need more than just language proficiency; they must also develop analytical and problem-solving skills that are specific to their fields. By integrating critical thinking into ESP courses, we empower students to assess information, challenge assumptions and interact more meaningfully with specialized texts [3].

Analytical reading is essential in ESP because it allows learners to dive deep into the texts that are relevant to their academic or professional fields. Typically, ESP students engage with technical or discipline-specific materials. This kind of reading helps them break down complex ideas, identify key arguments and grasp industry-specific terminology. When students develop strong analytical skills, their writing improves too, as they can emulate well-structured texts, understand rhetorical



techniques and articulate their thoughts more clearly. The ability to dissect texts into their fundamental components – like arguments, evidence and assumptions – is vital. Researchers highlight the importance of skills such as spotting biases, assessing sources and differentiating between fact and opinion [4].

Argumentation and reasoning skills are central to CT in ESP education. It is crucial to teach students how to build logical arguments, use evidence effectively and anticipate counterarguments [5].

Combining information from different sources to create a cohesive understanding is a crucial skill for professionals. When students synthesize ideas from various texts, it boosts their critical thinking by requiring them to compare, contrast and harmonize different views [6].

Close reading strategies, such as annotating and questioning the text, are recommended for fostering deeper engagement [7].

As digital texts become more common, researchers are emphasizing the need for critical digital literacy, which involves assessing online sources and recognizing algorithmic biases [8].

Ukrainian scholars have played a significant role in advancing CT in higher education. Some researches delve into how CT tasks can be integrated into reading comprehension exercises, stressing the importance of relating texts to students' professional fields [9], focusing on critical questions and actions in ESP classes, based on texts related to future careers to help foster students' critical thinking skills [10].

With regard to the connection between reading and CT, recent studies have shown that engaging in deep reading – like tackling complex texts – really boosts our analytical thinking skills. Researchers suggest that when we expose ourselves to a variety of viewpoints and challenging content, it encourages us to question our assumptions, assess evidence and synthesize information. As Paul and Elder put it, “Critical thinking begins, then, when we start thinking about our thinking with a view toward improving it.” [11, p.6].



Formulation of the purpose of the article. Teaching CT calls for a shift in our teaching methods to effectively instill essential CT elements like analyzing, evaluating, inferring and reflecting – especially in the context of ESP reading. This paper delves into the key skills needed to reach these objectives, highlighting how reading can be a transformative tool for developing both language abilities and cognitive skills, ultimately paving the way for intellectual growth and professional achievement.

Presentation of the main material. In our earlier research [12], we built upon the work of several scholars [4], [13], [14], [2], [15], [16] who highlighted the five essential skills that form the foundation of CT: *interpretation, analysis, evaluation, inference, explanation and self-regulation*. In this article we will focus on how we can apply CT skills model to enhance communication skills among telecom students through engaging reading activities.

Let us start with *interpretation skills* which refer to the ability to analyze, understand and explain information given in written, spoken, graphic or symbolic form. These skills have applications in a wide range of fields including education, law, literature, science, and business or engineering. They include grasping both the explicit and implicit meanings behind data, speeches or texts; evaluating information objectively and making logical inferences; connecting various pieces of information to create a clear understanding. These skills are essential for identifying sources, analyzing information logically, evaluating assumptions, drawing conclusions, making decisions and comprehending meaning. They also support abilities like categorization and clarification [2], [13]. Additionally, they help in finding strong examples, making comparisons, specifying necessary and sufficient criteria, paraphrasing and using analogies to eliminate vagueness or ambiguity [14]. For engineering students, these skills are particularly valuable as they navigate research papers and technical documents, analyze data, spot trends and make well-informed decisions.

When it comes to reading skills in ESP, it is essential to follow a genre-based approach to classify and analyze texts effectively [17]. To enhance interpretation skills



while reading, activities can include: figuring out the author's purpose, theme or perspective; differentiating between the main idea and supporting details; understanding the implied context; summarizing or outlining the text; exploring the meanings of topic-related words in context; and using jigsaw reading to encourage students to interpret and synthesize information in the collaborative way.

Considering the telecoms students' specificity we recommend a variety of engaging activities: 1) Technical Article Analysis (e.g. *Read an article comparing advancements in 5G and 6G. Summarize the key points and evaluate how feasible it is to implement 6G*); 2) Infographic and Data Interpretation. Share telecom industry statistics, network diagrams, or infographics, and ask students to analyze trends and patterns (e.g. *examine a mobile broadband coverage map and discuss how it illustrates network expansion strategies*); 3) Compare and Contrast Reading. Assign texts that describe two competing telecom technologies and ask students to evaluate their strengths and weaknesses (e.g. *Compare articles on fiber-optic vs. satellite internet and argue which one will be more effective in rural communities*); 4) Predictive Reading Exercise. Ask students to read a fragmentary industry report and predict the results based on the provided information (e.g. *Read a report on increasing mobile data usage and predict its impact on future network capacity*).

These activities improve interpretation skills by leading students to judge, analyze and make informed conclusions on telecom-related texts.

Analysis skills are essential for pinpointing the key elements of an argument, such as its conclusion, assumptions, implicit ideas, facts, definitions, value judgments, recommendations and explanations while analyzing how the statements logically connect [14]. They are significant in language acquisition because they allow students analyze and understand texts, construct logical arguments, expand vocabulary and master grammar structures. Through the inclusion of analysis competencies in teaching, educators can help students develop a deeper, more critical understanding of language, improving both comprehension and expression.



In the matter of reading, we can practice identifying and analyzing key concepts, terminology and main ideas within texts. This can involve annotating by underlining, highlighting or adding comments, as well as exploring the structure of various text types – like research papers, manuals, and case studies – related to students’ fields of study. We can introduce reading strategies such as skimming, scanning and in-depth reading. In jigsaw reading, students can discover how sentences or paragraphs connect to each other and to the main purpose of the passage. Additionally, they can compare and contrast information from different texts on similar topics, identifying both similarities and differences, and evaluate the author’s arguments, evidence and conclusions.

The activities can include: 1) **Compare and Contrast Reading.** Give students **two articles** that offer different viewpoints on a telecom issue and ask them to explore the differences (*e.g. Compare two articles – one that supports 5G network expansion with another that points out its risks, analyzing the arguments in each*); 2) **Evaluating Technical Claims.** Assign students to **fact-check claims made in telecom advertisements, reports, or research papers** (*e.g. Analyze a telecom provider’s claim about “unlimited 5G data” and assess its validity based on terms and conditions*); 3) **Cause-and-Effect Analysis of Telecom Trends.** Provide students with **historical data on telecom advancements** and suggest identifying cause-and-effect relationships (*e.g. Analyze how the rise of cloud computing has influenced telecom infrastructure development*).

These activities are designed to help **telecom students** enhance their **analysis skills in reading**, preparing them to critically evaluate technical information, industry trends, and research findings in their field.

Evaluation skills involves evaluation of the credibility of statements and determination of the logical strength of their connections [13]; assessing the relevance, validity, credibility and truth of claims and assumptions [2], [14].



Developing evaluation skills through reading are important for telecommunications students as they help them determine the credibility, accuracy, and relevance of various technical texts, research articles and industry reports. These skills play a vital role in making well-informed decisions in areas like telecom engineering, policy analysis and network troubleshooting. Here are some engaging activities designed to boost these evaluation skills: 1) **Credibility Assessment of Telecom Sources.** Provide students with a mix of telecom-related materials (like academic papers, news articles, blogs, and white papers) and have them assess which sources are credible. For instance, they could compare an IEEE research paper on 5G networks with a blog post about the same topic and discuss which one they find more trustworthy and why; 2) **Compare and Contrast Competing Telecom Technologies.** Encourage students to weigh the pros and cons of two rival telecom technologies using expert sources. For example, they might look at fiber-optic versus satellite internet through industry reports to see which option is more effective for rural connectivity; 3) **Peer Review and Discussion.** Ask students **read and judge each other's evaluations** of telecom articles or reports, fostering deeper analysis. For example, each student could evaluate a different article on cloud-based telecom solutions and then share their insights with the class for a lively discussion.

By diving into these activities, **telecom students** will develop strong **evaluation skills** allowing them to assess **data, arguments, policies and technical claims** with a critical mindset.

Let us explore another important element – *inference skills*. Inference is all about picking out the key details to make conclusions, coming up with hypotheses, weighing relevant information and figuring out the implications from different sources [2], [13]. Sub-skills of inference include questioning evidence, considering alternatives, drawing conclusions [13], evaluating claim credibility, and assessing argument quality through inductive and deductive reasoning [2].



In our reading activities we can suggest: 1) **Predicting Trends from Data Reports.** Ask students to analyze **telecom market reports, network performance statistics, or technology adoption data** and predict future developments (e.g. *Based on mobile network traffic growth data, infer how telecom providers may adapt their infrastructure in the next five years*); 2) **Evaluating Technical Proposals for Hidden Challenges.** Share **research papers or proposals on telecom innovations** and challenge students to infer **possible risks or challenges** (e.g. *Read a proposal on AI-driven network optimization and think about potential security risks that might not be directly mentioned*); 3) **Contradictory Information Analysis.** Present two opposing viewpoints on a telecom issue and ask students to determine which argument holds more weight and why (e.g. *Compare two reports – one supporting satellite internet and the other advocating for fiber-optic networks – and analyze the key strengths and weaknesses of each*).

By participating in these activities, **telecom students** will enhance their **inference skills** in reading, allowing them to **analyze technical content, interpret and infer information** from complex texts, **predict industry trends**, recognize **biases and draw logical conclusions** from a variety of telecom-related sources.

Still another important element – *explanation skills* – is an ability to clearly articulate reasoning, back it up with evidence and context and present well-organized arguments. Key sub-skills in this area include stating results, justifying methods, and constructing coherent arguments [2], [13].

In reading assignments, we can suggest that students tackle specialized texts to create concept maps or diagrams that illustrate the information they have gathered, explaining the relationships and connections between various concepts, or providing a succinct summary. They might also read technical documents or manuals to clarify the meanings of difficult terms using context clues from the text, as well as key steps, procedures or concepts.



For telecom students, developing their explanation skills in reading is vital, as they must analyze, interpret and effectively communicate technical information. Here are some engaging activities to help boost these skills: 1) Concept Mapping. Encourage students to create concept maps from their reading materials, highlighting the relationships between telecom principles, technologies, and applications. This visual tool not only clarifies their understanding but also enhances their ability to explain ideas logically; 2) Socratic Questioning. After reading a passage, prompt students with open-ended questions like: *What is the author's main argument? How does this concept relate to real-world telecom scenarios? What assumptions does the text make? What alternative viewpoints could be considered?* This method fosters deeper thinking and helps them articulate their thoughts more clearly; 3) Peer Teaching. Break students into small groups and assign each group a different telecom topic (like fiber optics, 5G networks, or signal processing). Each group researches their topic and then explains it to the rest of the class. This approach encourages students to simplify complex information into clear explanations; 4) Role-Playing Scenarios. Assign students roles such as “customer support specialist” or “telecom engineer” and have them engage in scenarios that require to explain technical concepts in a relatable way. This boosts their knack for turning technical jargon into everyday language.

Now, let us take a closer look at *self-regulation skills*. Experts define *self-regulation* as the process of actively keeping tabs on your own thinking, analyzing and evaluating your reasoning to question, confirm, validate, or correct your judgments and conclusions [2], [13]. A critical thinker's key skill is applying these principles to their own ideas and communication, whether in writing or speaking [14]. The two main sub-skills involved are self-examination/self-monitoring and self-correction [2, p.6], [13, p.7].

With reference to developing self-regulation skills in reading within ESP context, students need to learn how to manage and improve their reading strategies on their own.



Here are some ideas to foster these skills in reading instruction: provide students with rubrics or checklists that outline what effective reading (like grasping main ideas and pinpointing key details) so they can assess their own performance; after reading a passage, encourage students to create self-evaluation questions based on the content to check their understanding; and expose them to various professional contexts (like research articles and industry reports) to help them adapt their reading strategies to fit the specific needs of their audience and purpose.

These assignments are designed to spark students' enthusiasm for managing and enhancing their reading skills as part of their ESP program. By promoting reflection, goal-setting and strategy selection, we help students become more self-regulated readers. Strengthening these self-regulation skills in reading empowers telecom students to take charge of their learning, boost their comprehension and sharpen their critical thinking abilities. Here are some engaging activities to help build these skills:

- 1) Active Annotation and Margin Notes. Encourage students to highlight key points, jot down questions in the margins, and underline important telecom terms. They can use different symbols like a question mark for unclear parts and an exclamation mark for key ideas. This approach promotes active engagement and self-monitoring during reading.
- 2) Think-Aloud Reading. Assign students to read a telecom-related passage aloud while sharing their thoughts. For example, they might say, *"This paragraph explains network congestion, but I need to find more examples,"* or *"This equation looks complex. Let me break it down."* This practice helps them recognize gaps in their understanding and fosters self-regulation.
- 3) Peer Reading Groups. Organize students into small groups where each member takes on a specific role: Summarizer (who summarizes the passage), Questioner (who asks critical thinking questions), Clarifier (who explains difficult terms), and Predictor (who suggests possible applications or implications). This setup encourages self-monitoring, reflection, and collaborative learning.
- 4) Chunking and Summarization. Break longer texts into smaller sections.



After each section, ask students to write a brief summary in their own words. This technique prevents passive reading and ensures they actively engage with the material.

Conclusions. Integrating critical thinking into reading instruction for telecommunications students within ESP context is essential for preparing learners to meet the demands of both academic study and future careers. By aligning core critical thinking skills – such as interpretation, analysis, evaluation, inference, explanation and self-regulation – with discipline-specific content and communicative tasks, educators can foster deeper engagement, better understanding, and more effective realization in technical situations.

The activities and strategies suggested here not only boost students' ability to process specialized texts and support language development but also inspire them to become independent, reflective thinkers who can handle complex information, make informed decisions and present well-reasoned arguments. Ultimately, equipping students with these higher-order thinking skills will contribute meaningfully to professional discourse and adapt them to the evolving challenges in the telecommunications industry.

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