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## THE PEDAGOGICAL FRAMEWORK OF USING HACKATHONS IN ENGLISH FOR IT (ESP) INSTRUCTION

*The article examines strategies for developing English communicative competence in future Information Technology (IT) specialists through the integration of hackathons into the instructional process. The relevance of the study is driven by the need to adapt English for Specific Purposes (ESP) teaching methodologies to the demands of the modern global tech market. A hackathon is considered not merely a technical competition but a high-stakes communicative environment that facilitates natural language acquisition.*

*The paper defines the key phases of implementing the hackathon model – from the pre-event scaffolding and input to the final product presentation and reflection. Particular emphasis is placed on the transformation of the instructor's role, shifting from a traditional lecturer to a technical consultant and editor who provides just-in-time linguistic support. The study explores the impact of this immersive format on lowering the affective filter and developing writing skills through the creation of «living documents», such as README files, API documentation, and Git commit messages.*

*The research also analyzes the comparative characteristics of the hackathon framework and classical pedagogy, highlighting their complementary nature. The benefits of collaborative work for developing sociolinguistic competence and 21st-century skills, including critical thinking and creativity, are discussed. Furthermore, the paper addresses specific challenges, such as linguistic asymmetry within teams and the risk of interlanguage fossilization due to the prioritization of functional utility over grammatical precision.*

*In addition, the paper highlights the potential of hackathons to foster the creation of a professional digital portfolio on GitHub, which is crucial for successful employment in a globalized economy. The implementation of such a strategy aims to prepare future IT professionals for effective professional interaction, where English serves as the operating system of their careers. The research concludes by identifying prospects for optimizing assessment metrics to evaluate linguistic progress within intensive project-based frameworks.*

**Key words:** *English for Specific Purposes (ESP); IT students; hackathon; professional communication; technical writing; project-based learning; GitHub; sociolinguistic competence.*

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## ПЕДАГОГІЧНІ ЗАСАДИ ВИКОРИСТАННЯ ХАКАТОНІВ У НАВЧАННІ АНГЛІЙСЬКОЇ МОВИ ПРОФЕСІЙНОГО СПРЯМУВАННЯ ДЛЯ МАЙБУТНІХ ІТ-ФАХІВЦІВ

У статті розглядаються стратегії формування англомовної комунікативної компетентності у майбутніх фахівців у галузі інформаційних технологій (ІТ) через інтеграцію хакатонів у процес навчання. Актуальність дослідження зумовлена необхідністю адаптації методики викладання англійської мови спеціального спрямування (ESP) до вимог сучасного технологічного ринку. Хакатон розглядається не лише як технічне змагання, а як високоінтенсивне комунікативне середовище, що сприяє природному засвоєнню мовного матеріалу.

У роботі окреслено основні етапи впровадження хакатонів – від підготовчого етапу (*scaffolding*) до презентації продукту та рефлексії. Особливу увагу приділено трансформації ролі викладача, який стає технічним консультантом та редактором, забезпечуючи «*just-in-time*» підтримку. Досліджується вплив імерсивного формату на зниження психологічного бар'єру (афективного фільтра) та розвиток навичок письма через створення живих документів: README-файлів, API-документації та коммітів у *Git*.

Дослідження також аналізує порівняльні характеристики хакатон-методики та класичної педагогіки, підкреслюючи їхню комплементарність. Наводяться переваги використання командної роботи для розвитку соціолінгвістичної компетенції та м'яких навичок (*21st-century skills*), таких як критичне мислення та креативність. Висвітлено виклики методу, зокрема ризик мовної асиметрії в командах та можливість фіксації граматичних помилок (інтермови) через пріоритет функціональності над точністю.

Окрім того, у статті підкреслюється потенціал хакатонів щодо формування цифрового портфоліо студента на платформі *GitHub*, що є критично важливим для успішного працевлаштування в умовах глобалізації. Реалізація запропонованого підходу має на меті підготувати майбутніх ІТ-спеціалістів до ефективної професійної взаємодії, де англійська мова виступає операційною системою їх кар'єри. У підсумку визначено перспективи оптимізації оцінювання лінгвістичного прогресу в межах інтенсивних проектних форматів.

**Ключові слова:** англійська мова для спеціальних цілей (ESP); ІТ-студенти; хакатон; професійна комунікація; технічне письмо; метод проектів; *GitHub*; соціолінгвістична компетентність.

**Introduction.** The paradigm of English for specific purposes (ESP), particularly within the domain of information technology (IT), is currently undergoing a radical shift from traditional grammar-translation and communicative methods toward highly immersive, task-based, and project-oriented frameworks. As a scholar in pedagogy and methodology, we observe that the integration of hackathons – intensive, collaborative events where participants solve complex problems within a strict timeframe – represents one of the most potent intersections of technical skill acquisition and linguistic competence (Porrás, 2026).

At its core, a hackathon is not merely a technical competition; it is a high-stakes communicative environment. From a pedagogical perspective, the hackathon model aligns perfectly with Vygotsky's

social constructivism and Dewey's «learning by doing». For IT students, language is no longer an abstract set of rules but a functional tool required to achieve a tangible outcome: a working prototype and a successful pitch (Artursson, 2022).

**The aim and tasks.** Research into experiential learning suggests that the cognitive load during a hackathon is distributed between problem-solving (logic/coding) and social coordination (language). When conducted in English, these events force students into the zone of proximal development (ZPD), where the necessity to communicate architectural decisions or debug code in a team setting accelerates vocabulary retention and pragmatic fluency.

Current academic literature regarding the use of hackathons in higher education emphasizes several

key dimensions of their effectiveness. Sources such as (Briscoe, 2017) highlight that hackathons mirror the Agile – Scrum environments of the modern tech industry. By adopting this format in English classes, educators move beyond mock scenarios. Students must use functional language for sprint planning (negotiating roles and deadlines), daily stand-ups (reporting progress and «blockers» in concise, professional English, and retrospectives (critically evaluating the process).

**Research results.** According to (Medina, 2023), CLIL is most effective when the subject matter is highly relevant to the learner. A hackathon provides the ultimate «hard CLIL» environment. The language used is authentic; students engage with English-language documentation (API docs, stack overflow, GitHub readmes), making the learning process intrinsically motivated.

The culmination of a hackathon is the product presentation. Methodologically, this serves as an intensive training ground for public speaking and technical storytelling. Students must synthesize complex technical data into a persuasive narrative for a non-technical audience (the Business English aspect), requiring mastery of signposting, rhetorical devices, and visual aid integration (Warner, 2022).

To implement this effectively, the pedagogical design must be structured into three distinct phases (see Table 1):

One cannot ignore the «affective filter» (Krashen, 2021). While the pressure of a 24-hour hackathon might seem to raise anxiety, the gamification aspect often lowers the barrier to speaking. Students become so focused on the «goal» (the software) that they bypass the «fear» (grammatical mistakes). Moreover, hackathons cultivate 21st-century skills, such as: critical thinking (analyzing a problem statement in English), creativity (designing a unique UI/UX), communication (explaining a back-end logic to a front-end developer).

Despite the benefits, the scholarly consensus points to several hurdles and one of them is linguistic asymmetry, i.e., in a team, one dominant speaker

may overshadow others. Educators must implement communication roles (e.g., a designated scrum master who ensures everyone contributes in English). Another difficulty is assessment complexity – how do we grade a hackathon? The methodology suggests a rubric-based assessment that evaluates both the technical viability of the product and the linguistic quality of the documentation and pitch (Lappalainen, 2019).

**Discussion.** The analysis of current pedagogical sources confirms that hackathons are not a trend but a robust methodological framework. They transition the IT student from a passive consumer of English to an active creator within the global tech discourse. For an IT professional, English is the operating system of their career; the hackathon serves as the most effective «Installation Wizard» (Hynninen, 2025). By synthesizing technical challenges with linguistic rigor, we create an environment where the interlanguage of the student evolves rapidly. As researchers, our task is to further refine the assessment metrics to ensure that the noise of the competition does not drown out the signal of linguistic progress (Falkner, 2018).

In the traditional classroom, writing is often perceived as a static, solitary activity. However, within the framework of an IT-focused hackathon, writing becomes collaborative and asynchronous. Future software engineers must master various genres of written English that are rarely covered in general English courses. The hackathon environment forces students to produce living documents (Chilingaryan, 2021). We can categorize these into three linguistic layers:

- conceptual – project proposals, README files, and value propositions;
- technical – API documentation, code comments, and commit messages;
- promotional – social media blurbs, presentation slides, and post-event summaries.

The README.md file on GitHub is arguably the most critical piece of writing for an IT professional. In a hackathon, students must describe a problem statement, requiring the use of complex cause-and-

Table 1

**Three phases of structured pedagogical design**

Phase	Focus	Linguistic output
Pre-hackathon (input)	Scaffolding and vocabulary	Technical terminology, pitch templates, brainstorming phrases.
Hackathon (process)	Fluency and coordination	Real-time negotiation, debugging dialogues, peer-to-peer instruction.
Post-hackathon (reflection)	Accuracy and assessment	Final pitch, technical documentation, reflective essays/blogs.

effect structures; a tech stack, focusing on noun phrases and technical terminology, and an installation guide, utilizing the imperative mood and sequential markers (First, Next, Ensure that...). This isn't just writing; it is information architecture. Methodologically, this teaches students the economy of language – how to convey maximum technical meaning with minimum linguistic ambiguity.

A frequently overlooked pedagogical benefit of hackathons is the use of Git. Writing commit messages (e.g., «Fix: Resolve null pointer exception in user authentication module») is a specialized form of English. It requires a specific syntax (imperative mood, no articles, high density of technical verbs). Through the rapid-fire nature of a hackathon, students practice this micro-writing hundreds of times, internalizing professional standards of clarity and brevity.

Unlike a teacher-graded essay that takes days to return, written English in a hackathon has immediate consequences. If a teammate cannot understand the documentation written by another, the code breaks. This creates a natural, high-stakes incentive for linguistic precision. Students engage in peer-editing not as a formal exercise, but as a survival mechanism for their project. Students learn to distinguish between different registers. The language used in a Slack / Discord channel for quick coordination (informal, heavy use of jargon and abbreviations) is vastly different from the language used in the final Pitch deck (persuasive, formal, aimed at stakeholders). This development of sociolinguistic competence is vital for future work in international outsourcing or product companies (Byrne, 2024).

The psychological phenomenon of «flow» is common during hackathons. When students are focused on solving a logic puzzle or an API integration, they tend to over-analyze their grammar less. This leads to increased writing fluency. The goal is to communicate the how-to, and in doing so, students often produce more text in 24 hours than they would in a month of standard lessons.

To maximize the benefits for written English, the hackathon should be structured with specific linguistic deliverables (see Table 2):

In this scientist-pedagogue role, we argue that the teacher must have transition from a sage on the stage to a technical editor / consultant. During the hackathon, the instructor should circulate, offering just-in-time linguistic support (Sydorenko, 2022). The use of hackathons in teaching English to future IT specialists represents the pinnacle of contextualized learning. It transforms the act of writing from an academic chore into a professional asset. By the end of such an event, a student doesn't just have a grade; they have a portfolio. They have a GitHub repository filled with English-language documentation and a presentation that proves they can navigate the global IT market. The hackathon proves that for an IT student, the best way to learn English is to build with it. We are not just teaching a language; we are debugging their communication skills for a globalized professional world.

The primary drawback of the hackathon format in teaching written English is the inevitable sacrifice of linguistic precision for the sake of functional speed. In hackathons the definition of «Done» is a working product. If a student writes a README file that is grammatically broken but technically understandable, the mission is considered accomplished. This can reinforce interlanguage fossilization, where errors in syntax or articles become permanent because they do not break the code. In classical methods traditional academic writing (essays, summaries, formal letters) prioritizes accuracy. The feedback loop is focused on the how rather than the what. For a future IT professional, missing the nuance of a modal verb in a legal contract or a high-stakes technical proposal could be detrimental. Classical methods ensure the student respects the architecture of the language as much as the architecture of the software (Konovalenko, 2019).

As established in our previous analysis, hackathons place students in the zone of proximal development. However, the cognitive load of debugging a complex algorithm in a foreign language can lead to linguistic tunnel vision. When the brain is exhausted by logical problem-solving, it reverts to the simplest possible linguistic structures. Instead of using sophisticated transition words or passive

Table 2

**Specific linguistic deliverables of a hackathon**

Deliverable	Pedagogical objective	Key language skills
Pitch deck	Persuasive writing	Rhetorical appeals, data visualization descriptions
API Docs (Swagger/Postman)	Technical precision	Definition of parameters, error message handling
Team logs/journals	Reflective writing	Past tenses, evaluating progress, identifying blockers
Post-mortem report	Analytical writing	Abstracting lessons learned, conditional sentences (If we had...)

constructions for objectivity, students rely on subject-verb-object fragments. Systematic writing instruction provides the quiet space necessary for metacognition. In a traditional classroom, a student has the mental bandwidth to experiment with complex sentence structures, such as inversion or participle clauses, which are almost never produced under the 24-hour pressure of a hackathon.

**Conclusions.** Hackathons are high-intensity bursts of learning. While they provide excellent affective benefits, they often lack the spaced repetition required for long-term retention of complex writing conventions.

A student might learn the term deployment or scalability during the event, but without the reflective, repetitive drills found in classical pedagogy, the nuanced difference between comprise, consist of, and include in a formal technical report may remain unlearned. In a collaborative writing environment (like a shared Google Doc or GitHub Repo), the linguistic Pareto principle often takes effect: 20% of the students (those with higher proficiency) produce 80% of the written content. Weaker students may hide behind their more fluent teammates, contributing code but avoiding the written documentation. In a classical setting, every student is required to produce their own individual text, ensuring that no one is left behind in the development of their written competence.

Despite these non-essential drawbacks, such as, the risk of fossilized errors or the lack of formal nuance, the hackathon remains superior for future IT professionals for one reason – contextual relevance.

The errors made during a hackathon are professional scars that teach resilience. While classical methods provide the skeleton of the language, the hackathon provides the blood and muscle. The ideal pedagogical strategy, therefore, is not to replace one with the other, but to use the hackathon as a stress test for the skills meticulously built in the classical classroom.

We conclude that the defects of hackathons are merely optimization opportunities. By introducing a post-hackathon correction phase (a classical method), we can take the raw, fluent writing produced during the event and refine it into high-quality technical

prose. In the end, the hackathon doesn't fail to teach writing; it simply redefines what writing is in the 21st-century digital economy – a tool for creation, not just an object of study.

Integrating hackathons into the English for Specific Purposes (ESP) curriculum shifts language learning from an academic exercise to the mastery of a professional toolkit. Students do not write for a grade; they write for the market or the team. This fosters a genuine understanding of professional genres: README files, technical specifications, and real-time coordination via platforms like Slack or Discord. Within a 24-48 hour window, a student produces a volume of written English comparable to an entire semester of traditional coursework. The intense focus on solving a technical problem allows students to bypass the fear of error, which is a critical psychological barrier to developing written fluency. Writing in a hackathon is inextricably linked to teamwork, time management, and persuasive communication (pitching).

Despite their high efficiency, hackathons possess side effects that must be managed within a pedagogical framework:

- risk of fossilization – due to the high speed of communication, grammatical errors may become permanent if there is no subsequent stage of reflection and correction;
- precision vs. speed – students often sacrifice linguistic accuracy for functional utility, leaning on simplified sentence structures to save time;
- participation imbalance – without instructor moderation, the writing burden may fall exclusively on the most proficient student, leaving others without practice.

The comparison of hackathons with classical pedagogy demonstrates that these two paradigms are not mutually exclusive but rather complementary (see Table 3).

The primary advantage of using hackathons for teaching written English is the creation of a digital portfolio. A student leaves the classroom with a live GitHub repository where their English proficiency is documented within a professional context.

Table 3

**The comparison of classical academic writing with hackathon writing**

Criterion	Classical academic writing	Hackathon (task-based) writing
Primary outcome	Linguistically polished text	Viable, understandable product
Pace of learning	Slow (process-oriented)	Fast (result-oriented)
Grammar focus	Deep study and application	Functional / strategic usage

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