TEACHING ENGLISH FOR OIL AND GAS ENGINEERING STUDENTS: A PRACTITIONER'S PERSPECTIVE

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Abstract: English for Specific Purposes (ESP) in the oil and gas sector demands far more than a standard language syllabus; it requires a deeply contextualized pedagogy rooted in professional practice, safety culture, and authentic communication. This article offers a reflective account of teaching English to undergraduate petroleum, drilling, and downstream process engineers. It argues that effective instruction begins with a rigorous needs analysis and continues through the deliberate teaching of polysemous technical vocabulary, the design of simulation-based activities, and the cultivation of assertiveness in hierarchical, multilingual work environments. By treating language not as an abstract system, but as a safety-critical professional tool, the teacher can transform passive engineering knowledge into active communicative competence. The discussion covers materials development from real drilling reports and incident investigations, task-based assessment aligned with industry procedures, and practical strategies for bridging the gap between high-level reading comprehension and productive speaking skills. The article concludes that teaching English to future oil and gas professionals is fundamentally an act of professional respect—one that equips students to think, speak, and act safely in the environments that power the world.

Keywords: English for Specific Purposes (ESP), oil and gas engineering, needs analysis, technical vocabulary, safety communication, simulation-based learning, authentic materials

NEFT VA GAZ MUHANDISLIGI TALABALARIGA INGLIZ TILINI O'QITISH: AMALIYOTCHI NUQTAI NAZARI

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Annotatsiya: Neft va gaz sohasida maxsus maqsadlar uchun ingliz tili (ESP) oddiy til o'quv dasturidan ancha ko'proq narsani talab qiladi; u kasbiy amaliyot, xavfsizlik madaniyati va haqiqiy kommunikatsiyaga tayangan chuqur kontekstlashtirilgan pedagogik yondashuvni zarur qiladi. Ushbu maqolada neft, burg'ilash va quyi oqim texnologik jarayonlari muhandisligi yo'nalishida tahsil olayotgan bakalavriat talabalariga ingliz tilini o'qitish bo'yicha amaliy kuzatishlar yoritiladi. Maqolada samarali ta'lim ehtiyojlarni puxta tahlil qilishdan boshlanishi, ko'p ma'noli texnik leksikani maqsadli o'rgatish, simulyatsiyaga asoslangan mashg'ulotlar yaratish hamda ierarxik va ko'p tilli ish muhitida qat'iy, ammo madaniyatli muloqot ko'nikmalarini shakllantirish orqali davom etishi ta'kidlanadi. Tilga mavhum tizim sifatida emas, balki xavfsizlik uchun muhim kasbiy vosita sifatida qarash o'qituvchiga passiv muhandislik bilimlarini faol kommunikativ kompetensiyaga aylantirish imkonini beradi. Muhokamada real burg'ilash hisobotlari va hodisalar tahlili asosida materiallar ishlab chiqish, sanoat tartib-qoidalariga mos vazifaga asoslangan baholash hamda yuqori darajadagi o'qib tushunish ko'nikmalari bilan og'zaki nutq ko'nikmalari o'rtasidagi tafovutni bartaraf etish strategiyalari ko'rib chiqiladi. Maqola kelajakdagi neft va gaz mutaxassislariga ingliz tilini o'qitish kasbiy

hurmat ifodasi bo‘lib, ularni dunyoni energiya bilan ta’minlaydigan muhitlarda xavfsiz fikrlash, gapirish va harakat qilishga tayyorlaydi, degan xulosa bilan yakunlanadi.

Kalit so‘zlar: maxsus maqsadlar uchun ingliz tili (ESP), neft va gaz muhandisligi, ehtiyojlar tahlili, texnik leksika, xavfsizlik kommunikatsiyasi, simulyatsiyaga asoslangan o‘qitish, autentik materiallar

ПРЕПОДАВАНИЕ АНГЛИЙСКОГО ЯЗЫКА СТУДЕНТАМ НЕФТЕГАЗОВОГО ИНЖИНИРИНГА: ВЗГЛЯД ПРАКТИКА

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Аннотация: Английский язык для специальных целей (ESP) в нефтегазовой отрасли требует гораздо большего, чем стандартная языковая программа; он предполагает глубоко контекстуализированную педагогику, основанную на профессиональной практике, культуре безопасности и аутентичной коммуникации. В данной статье представлен рефлексивный опыт преподавания английского языка студентам бакалавриата, обучающимся по направлениям нефтяной инженерии, бурения и перерабатывающих технологических процессов. Подчеркивается, что эффективное обучение начинается с тщательного анализа потребностей и продолжается целенаправленным обучением многозначной технической лексике, разработкой симуляционных заданий и формированием уверенной коммуникативной позиции в иерархической и многоязычной рабочей среде. Рассмотрение языка не как абстрактной системы, а как профессионального инструмента, критически важного для безопасности, позволяет преподавателю преобразовать пассивные инженерные знания в активную коммуникативную компетенцию. В статье рассматриваются разработка материалов на основе реальных буровых отчетов и расследований инцидентов, оценивание, основанное на задачах и согласованное с отраслевыми процедурами, а также практические стратегии преодоления разрыва между высоким уровнем понимания прочитанного и продуктивными навыками говорения. В заключение отмечается, что преподавание английского языка будущим нефтегазовым специалистам является актом профессионального уважения, который помогает студентам мыслить, говорить и действовать безопасно и эффективно в среде, обеспечивающей энергией современный мир.

Ключевые слова: английский язык для специальных целей (ESP), нефтегазовая инженерия, анализ потребностей, техническая лексика, коммуникация в сфере безопасности, симуляционное обучение, аутентичные материалы

INTRODUCTION

Teaching English to oil and gas engineering students is not a job one stumbles into by accident. A teacher does not simply wake up one morning and decide to explain the difference between blowout preventers and Christmas trees to a room full of twenty-year-olds who can already describe fluid dynamics in their mother tongue but freeze when asked to introduce themselves in English. One arrives there deliberately, often after years of general English teaching, drawn by the peculiar gravity of a world that runs on jargon, risk, and precision. I remember my first class vividly. I had prepared a carefully organized lesson on modal verbs—polite requests, possibility, and obligation—and within ten minutes a student raised his hand and asked, “Teacher,

why do we say ‘the well is kicking’? It is not a baby.” I never finished that modal verbs worksheet. That question changed everything.

To teach English to future petroleum engineers, drilling supervisors, and refinery process operators, one must first accept that one is not merely a language instructor. The teacher becomes, temporarily, a student of their world. It is necessary to understand that hydrocarbons are not just a topic in a textbook but the physical substance that will shape learners’ careers, the reason they may wake up at 4 a.m. on a rig in the North Sea or spend months in the desert near Basra. If the teacher does not grasp why a wellbore stability report matters, it is impossible to design a reading comprehension task that holds students’ attention. The language being taught must be connected directly to their sense of identity, professional ambition, and awareness of the risk of making a mistake that could cost millions or cause a safety incident. This article explores the practical journey of developing such a course, grounded in established ESP principles while responding to the unique demands of the hydrocarbon industry.

MATERIALS AND METHODS

Needs Analysis: The foundation of any successful course lies in a rigorous needs analysis (Dudley-Evans & St John, 1998). This phrase is often repeated at conferences until it nearly loses its meaning, but in the oil and gas context it remains brutally practical. A teacher cannot rely on a generic engineering English textbook. It is necessary to sit down with subject-matter experts, or better yet, with the students themselves, and map out what communication actually occurs in their daily work.

An upstream drilling engineer needs functional language for pre-spud meetings, daily drilling reports, and discussions about mud weight and rate of penetration. A petrophysicist preparing log interpretations needs to present uncertainty appropriately: “The formation appears to have good porosity, but the water saturation estimate carries a significant margin of error.” A downstream process engineer needs to write clear operating procedures, incident reports, and shift handover notes, where ambiguity about valve status can have cascading consequences.

Even within the same department, communicative competencies differ. A team leader managing a well test needs to chair a safety briefing, delegate tasks, and challenge an unsafe act with firmness and diplomacy, while a junior laboratory technician analyzing crude samples needs to read ASTM standards and compose concise emails summarizing test results. This targeted analysis transforms a broad language course into a professional development tool.

Materials and Simulations: Materials selection and development are a constant creative challenge. Published textbooks for oil and gas English exist, and some are excellent, but they cannot always keep pace with the sector or the specific context of a particular national oil company or university. Drawing on the principle that authentic materials increase learner motivation and transfer (Hutchinson & Waters, 1987), I eventually learned to curate real-world sources: excerpts from the IADC Drilling Manual (International Association of Drilling Contractors, 2015), SPE paper abstracts, sections of safety management system documents, and real daily drilling reports with identifying details anonymized.

A single drilling report can provide a week’s worth of language work. Students can scan it for verb forms, noting how the simple past reports completed actions (“ran in hole to 3,500 m”), while the present continuous describes ongoing operations (“currently circulating bottoms up”), and modal verbs express obligations and recommendations (“casing shall be pressure tested to 5,000 psi before drilling out the shoe”). Reading skills can be practised by having students extract key data into a morning report template, and speaking practice can then be generated by role-

playing the handover between night and day shifts based on that template. The material becomes alive because it is real.

Simulations take this further. In a classroom without a drilling simulator, a low-fidelity tabletop exercise can be created. I once built a well control simulation using nothing but a whiteboard, paper markers, and a few laminated cards representing the drill string, annulus, and BOP rams. Students had to call out pressures, make decisions, and record events on an IADC kill sheet, all in English. The language that emerged was intense, authentic, and memorable. They remembered the phrase "circulate and weight up mud to XXX pcf" because they had used it to solve a problem, not because they had memorized it.

Later, I integrated listening exercises from safety meeting recordings and incident investigation videos. The students—many of them visual learners with strong analytical intelligence—were initially uncomfortable with listening tasks that did not follow a neat textbook script. They struggled with the Glaswegian drilling supervisor's accent, hesitations, and overlapping turns. After several weeks, however, they started catching the gist and then the nuance. They learned to distinguish a casual remark from a safety-critical instruction, and that ability is worth far more than a perfect score on a grammar test.

Task-Based Assessment: Assessment also requires careful redesign. Traditional language tests that isolate grammar points or vocabulary recall fail to capture whether a student can actually function in an engineering environment. In line with task-based assessment principles (Norris, 2009), I moved toward professional simulations. For a midterm, I might give a group an equipment-related incident description—such as a packer failure during a well test—and ask them to role-play an incident investigation meeting, then individually write the report.

Evaluation criteria include clarity, accuracy of technical vocabulary, appropriate use of hedging when speculating ("The elastomer may have been damaged during run-in-hole"), and communication strategies such as confirming understanding. The marking rubric is shared with students in advance and partly co-created with engineering professors, so that assessment is perceived not as a language hurdle but as a realistic rehearsal of future job responsibilities.

RESULTS

Once the needs are mapped, the teacher confronts the challenge that terrifies every new ESP practitioner: technical vocabulary. Oil and gas engineering vocabulary is a dense thicket of polysemous terms, metaphors, and acronyms that can quickly overwhelm learners. The word "spud," for instance, means to begin drilling a well, but it may also exist in students' minds as a potato until clarified. "Kick" means an influx of formation fluids into the wellbore—a warning sign of a potential blowout—not a football movement. A "fish" is not something one eats, but a piece of equipment lost downhole that needs to be retrieved.

There are also acronyms that build upon one another: BOP (blowout preventer), BHA (bottom hole assembly), LOT (leak-off test), ROP (rate of penetration), H2S (hydrogen sulfide), and many others. Teaching them as a list to be memorized is a recipe for fatigue and failure. Vocabulary instruction must instead be embedded in the narratives and processes that give these terms meaning. A teacher does not simply define "BOP stack"; the teacher tells the story of the Deepwater Horizon (National Commission, 2011), not to frighten students, but to make tangible the weight of what this equipment means.

In a simulated well control scenario, one student acts as the driller, another as the toolpusher, and a third as the mud engineer. At that point, terms such as "shut-in casing pressure" and "kill mud weight" stop being abstract glossary entries and become demands that must be

communicated under pressure. This shift from passive recognition to active use is one of the most important practical results of the course design.

The use of authentic materials and simulation-based tasks helped students connect their engineering knowledge with communicative performance. Students who could initially recognize technical terms in written materials began to use them in spoken exchanges, handover reports, safety briefings, and short professional presentations. Their productive language remained imperfect, but it became more functional, contextually appropriate, and professionally meaningful.

DISCUSSION

Communication Beyond Jargon: Effective teaching leads naturally to communication beyond jargon. Oil and gas technical professionals do not work in isolation. They coordinate with multidisciplinary teams, often multinational, across time zones and cultures. A graduate joining an international service company might have to explain a stuck pipe incident to a Scottish rig manager on a Monday, submit a written report to an American office by Friday, and participate in a videoconference with Nigerian partners the following week.

English here serves as a lingua franca, but not the pristine English of grammar books. It is a messy, accented, functional English in which clarity and intelligibility matter far more than native-like accuracy. Therefore, pragmatic strategies must be taught: how to ask for repetition without losing face, how to clarify likely misunderstanding ("Let me rephrase: are you saying that the mud weight is too low to control formation pressure?"), and how to signal an emergency clearly while controlling tone so that panic does not escalate.

Role-plays in this setting must move beyond transactional coffee-shop dialogues. They take the form of toolbox talks before a hazardous task, pre-job safety meetings, or after-action reviews, where a serious near-miss must be analyzed without blame but with absolute honesty. Research on safety-critical communication emphasizes that such interactions depend heavily on a shared linguistic repertoire and clear protocols (Dekker, 2014).

The Teacher's Role and Cultural Mediation: The role of the teacher shifts from knowledge dispenser to facilitator, materials architect, and sometimes cultural mediator. The teacher needs to understand, or at least seriously respect, the safety culture of the industry. For most engineering students, especially those with internship experience on rigs or in plants, the concept of "stop-work authority" is sacrosanct. If an activity is designed in which a student must communicate a safety concern and the other student ignores it, that is not merely a language breakdown; it is a violation of a deeply held professional value. Communication tasks should therefore be framed within the industry's own ethical framework: clear and direct language is practised because lives may depend on it. This framing dissolves resistance. A student who is reluctant to speak English in front of peers may find his voice when the scenario positions him as the person responsible for calling a drilling break and alerting the team. The teacher is not forcing him to perform language for language's sake; the teacher is giving him tools to uphold his professional duty. This also involves cultural nuance. In hierarchical settings, students must learn forms of respectful assertiveness, for example how to tell a senior supervisor, "I'd like to flag a concern…" using language that is polite but never vague.

Challenges and Sustaining Progress: Challenges are plentiful. There is typically a wide gap between students' receptive academic reading skills and their productive speaking and writing abilities. Many have studied English through grammar-translation for years, so they can decipher an SPE paper but cannot fluently describe what they understood in their own words. Transforming passive competence into active skill requires time and psychological safety.

Error correction must be strategic. If a student haltingly explains that “the pressure increased sudden,” it is not always useful to stop the flow and insert an adverb lesson. It is better to wait, respond to the content, and later use the sentence as an example in a focused mini-session on describing trends and using adjectives versus adverbs. Humor helps enormously. When a student once said, “We need to change the bit because it is tired,” the class laughed, but we then discussed that “worn” or “dull” would be more precise, while acknowledging that “tired” is a beautifully human metaphor and communicates the idea perfectly in an informal toolbox talk.

Technology is another challenge. In many oil-producing nations, students may have intermittent internet access but excellent mobile phones. The teacher adapts. WhatsApp can be used for micro-learning: a daily photo of equipment with the caption, “What is this? Describe its function in one voice message.” Short instructional videos can be created and shared. Offline-capable flashcard applications can be used for core vocabulary. These are not compromises but opportunities to embed learning into the rhythm of students’ real lives. A student who listens to a voice message explaining what happens during a leak-off test while commuting to university is experiencing learning situated in his real world, not confined to a classroom.

CONCLUSION

Teaching English for oil and gas engineering students is, at its core, an act of professional respect. The teacher respects the gravity of the work students will do, the environments they will inhabit—offshore platforms, remote drilling camps, and sprawling gas plants—and the multilingual crews they will join. The teacher respects the fact that a misplaced decimal point or a misunderstood instruction about choke position can have consequences far beyond a red mark on a paper. Therefore, every activity, vocabulary set, and communication task must be tailored to the real-world cognitive and linguistic demands of the industry. The teaching of English is blended with genuine curiosity about students’ discipline, and in that mutual exchange, the classroom becomes a workshop where language is forged in the context of blowout preventers, reservoir models, and separator pressures, rather than studied only in abstraction.

Over time, the transformation goes beyond linguistic improvement. A student who once stared silently at a subsea wellhead diagram may stand in front of the whiteboard and explain the casing hanger landing procedure in English that is not grammatically flawless but is entirely comprehensible, logically sequenced, and rich with exact terminology. That moment is the reason the teacher does the job. It also demonstrates that the real subject being taught is not English alone, but the ability to think, speak, and act safely and effectively in a world that powers civilization.

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