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INQUIRY-BASED PLANNING OF THE ESP LESSON: A GUIDED SIOP PLANNING INQUIRY MODEL FOR IT-TRACK LEARNERS

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Abstract

Recent observations show that lesson planning in English for Specific Purposes (ESP) instruction often follows a teacher-led, presentation-driven sequence in which teachers transmit content and language before practice. Meaningful planning based on content-based planning with traditional activities leading to content comprehension is efficient for covering expected objectives, but it offers limited scope for learner autonomy, professional reasoning, or the kind of problem-oriented communication that IT program graduates will actually need. This paper examines SIOP inquiry-based lesson planning as an alternative framework for ESP instruction, maps its theoretical roots, outlines a practical staged model for planning inquiry-driven lessons, and illustrates the model with a worked example for an IT-track ESP class. The article closes by discussing the approach's benefits and limitations in the context of Uzbek higher education.

Introduction

Does ESP teaching really serve as specific content teaching? Can you teach specific content to a learner with almost nil language ability? Traditional ESL Lesson planning is usually treated as a matter of sequencing content: a topic is usually provided in a syllabus or curriculum, vocabulary and grammar are identified in context or further practical activities are arranged to present, practice, and produce the target language. This type of framework works reasonably well for general English instruction, but it sits uneasily with the aims of ESP, where the goal is not simply linguistic competence but specific content understanding which is aimed at developing the ability to reason, question, and communicate within a professional domain.

For IT science program students in particular, professional communication is rarely a matter of reciting known information; it involves diagnosing problems,

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weighing options, and explaining technical and analytical reasoning activities that should be approached naturally and in an investigative way. A professional ESP instructor should explicitly link students' background competencies with a new topic, integrating specific field knowledge. Yet, curriculum analysis in selected state and private universities has shown only a few topics relevant to language-learning classes, with measurable content and language objectives truly designed around learner needs.

Inquiry-based planning based on the SIOP framework offers a way of designing lessons around this investigative structure rather than around content delivery. SIOP model planning requires planning around the core eight components, applying thirty features. Instead of asking "what should students know by the end of this lesson," the planning process begins with "what students have known, what they will investigate, and what language and linguistic structures will they need to investigate it?" Another crucial approach involves ways to increase independent learning (Curriculum allocated hours are twice as many as physical classes for ESP classes at all higher educational institutions studying at credit modules). This article lays out the theoretical and practical basis for that shift, proposes a staged SIOP planning framework suited to ESP contexts, and demonstrates it with a sample lesson plan for an Information Technology group at higher education.

Inquiry-based learning: origins and definitions

Inquiry-based learning has a rich history in language learning, rooted in Dewey's account of reflective thinking. He treated learning as a process of encountering a genuine problem, forming and testing possible explanations, and drawing conclusions from evidence. This process-oriented view was later formalised in science education through instructional models such as the BSCS 5E model — engage, explore, explain, elaborate, evaluate — developed by Bybee and colleagues as a practical structure for inquiry teaching. According to International School Bangkok, IBL is an effective approach in language learning that dates to the late 20th and early 21st century. EFL instructors began encouraging elicitation and investigation of grammar patterns, vocabulary, and contextual meaning through open-ended questions.

A more recent and more comprehensive account comes from a systematic literature review by Pedaste et al. (2015), who synthesised thirty-two existing

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inquiry frameworks into a single cycle comprising five general phases: Orientation, Conceptualisation, Investigation, Conclusion, and Discussion, with Discussion understood as a phase that can recur throughout the cycle rather than only at its end. This synthesis is useful for ESP planning because it separates the phases of inquiry from any single subject area, making it straightforward to adapt to a language classroom.

Degrees of guidance

Not all inquiry is equally open and similar. Banchi and Bell (2008), building on earlier work by Herron (1971), distinguish four levels of inquiry according to how much the teacher determines in advance: confirmation inquiry (question, procedure, and answer are all given), structured inquiry (question and procedure given, answer discovered), guided inquiry (only the question given, procedure designed by learners), and open inquiry (learners generate their own questions, procedures, and conclusions). D. Callison distinguishes four other levels of inquiry-based learning, which correspond to different levels of English learners. They are:

Controlled inquiry – instead of open-ended tasks, an instructor provides a specific question and the method for answering it. Students are encouraged to focus on data and analysis

Guided inquiry- In this level, an instructor introduces a question, but students choose the methods of investigation on their own. Callison highlights students' partial independent research in this level.

Open inquiry – This level is for learners who formulate their own questions and design their investigations. As far as we are concerned, the instructor's role here is facilitator and adviser, which supports student creativity but is still not complete independence.

In math classes, L. Menezes points out four phases of inquiry-based teaching: launching the task, developing the task, discussing the task, and systematising mathematical learning, promoting problem–solving and communication skills. In our view, these Information technology students can be challenged with real-world applications if they have not experienced inquiry-based instruction.

Free inquiry- at this level, by the author, describes a completely autonomous learner. They take responsibility for their own investigation and question formulation, which applies to advanced-level learners.

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For ESP language classrooms, which include different-level students, both views can be considered in lesson planning; guided inquiry is usually the most workable level: it preserves learner autonomy in designing an approach to the problem while allowing the teacher to control the language load and scaffold the investigation (Kuhlthau et al., 2015). What we offer for the four levels of ESP inquiry-based learning with Information Technology students is described in the following table

Table № 1 Inquiry-based learning model in ESP classes

Level 1	Level 2	Level 3	Level 4
The Investigation of student interest relying on existing student knowledge in collaboration. Topics should be integrated into specific subjects and trigger inquiry through the corresponding field of study, which works better for student decision-making. The choice of Interaction patterns is important at this level	This level requires teacher support and management skills during learners' investigation and data-collection process. Technical vocabulary, collocations, and speech models should be provided and required to be used, and this is clearly written in the assessment criteria.	Presentation and sharing ideas on a special educational platform (in Uzbekistan, the Hemis program). Because independent hours are difficult to control and require out-of-work teacher time, we encourage the use of university learning platforms.	Assessment, Evaluation and reflection. At this level, we offer ongoing assessment and peer assessment.

Universities leading studies in the credit-module system require much from ESP instructors, though meaningful time allocation could help both teachers and learners achieve lesson objectives involving content and foreign language comprehension.

Inquiry in language teaching

Applying inquiry-based principles to language teaching requires reconciling two demands that do not automatically align: the demand that learners investigate a genuine problem, and the demand that they acquire specific language forms along the way. Writing for English language teachers, Ward (2020) argues that inquiry-based teaching is compatible with English language teaching provided teachers scaffold both the investigative process and the language needed to carry

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it out, rather than assuming that language will simply emerge from the activity. This is the central design problem that an inquiry-based ESP lesson plan must solve, and it is the reason inquiry-based planning cannot simply be imported from content subjects without adaptation: every stage of the inquiry cycle needs an explicit language objective attached to it, not only a content or process objective.

Inquiry-based learning is an approach that increases learner engagement and critical thinking. When genuinely planned, this pedagogical approach leads students to explore learning topics and integrate them into their specific fields; as a result, they develop both language skills and professional competencies. Zabolotka and Olendar state that promoting higher-order thinking skills is an important part of non-linguistic specialities, achieved through case-based learning and debates. Zhang marked autonomous learning, which allows students to take responsibility for their own learning. Z. Snezana sees Inquiry-based learning in Project-based learning with a learner-centred approach, collaboration, and authentic tasks. However, Roberto warns that students need adequate guidance that meets diverse needs and promotes effective learning.

For ESP specifically, this compatibility is a natural fit. The professional domains that ESP serves — including information technology — are themselves organised around investigation: diagnosing a fault, evaluating a design option, explaining a technical trade-off. An inquiry-based lesson plan asks learners to rehearse exactly this kind of professional reasoning in the target language, rather than rehearsing language forms detached from any reasoning task.

Principles of Inquiry-Based Lesson Planning for ESP

Drawing on the frameworks above, four planning principles distinguish an inquiry-based ESP lesson from a conventional one.

Question-driven objectives**.** The lesson is planned around a genuine question or problem relevant to the professional field, rather than around a topic. "How would you decide which of these two algorithms to use?" is a planning anchor; "algorithms vocabulary" is not.

Staged but recursive structure**.** Following Pedaste et al. (2015), the lesson moves through orientation (introducing the problem), conceptualisation (forming questions or hypotheses), investigation (gathering and interpreting evidence), and conclusion (presenting findings), with discussion woven through every stage rather than reserved for the end.

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Guided, not open, inquiry**.** In line with Banchi and Bell (2008), the teacher provides the driving question and materials and scaffolds the language needed to investigate it, while learners design their own approach to answering it. Fully open inquiry is rarely appropriate given typical ESP contact hours and mixed proficiency levels. Thus, here we recommend orienting Callison's four levels to all types of learners.

Dual objectives at every stage**.** Each stage of the inquiry cycle includes both a content/process objective (what learners will investigate or decide) and a language objective (what learners will need to say or write to do so), addressing the scaffolding gap Ward (2020) identified.

The table below maps the inquiry cycle onto concrete ESP planning decisions.

Table № 2 A Step-by-Step Planning Framework

Inquiry Stage	Planning Question	Typical Teacher Actions	Language Focus
Orientation	What real problem or scenario will trigger student investigation?	Present a short case, artefact, or dataset from the professional field	Pre-teach key terms needed to understand the problem
Conceptualisation	What questions or hypotheses will learners generate? Which investigation methodology will students choose?	Elicit and refine learner questions; narrow to an investigable one	Question formation; hedging language for hypotheses
Investigation	How will learners gather and interpret evidence?	Provide source materials; assign roles; circulate to scaffold	Reporting and comparing language; cause-effect connectors
Conclusion	How will learners present and justify their answer?	Structure a short presentation or written summary task on online educational platform	Justifying opinions; presenting recommendations
Discussion, Evaluation (ongoing)	Where will reflection and peer feedback occur?	Build in short check-ins after each stage	Clarification and feedback phrases

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Planning proceeds by working across this table for a single lesson topic, starting with pre-teaching the topic. Without a topic introduction, or at least a suggestion of the first learning stages of the project being investigated, it normally fails or overloads students' tasks. Then sequence the resulting activities into a normal lesson timeline (warm-up, main stages, wrap-up), rather than treating the inquiry stages as a rigid separate structure bolted onto the lesson.

Illustrative Example (The provided research mini-task was initially reinforced with a reading task about emerging programming languages to illustrate both content and language objectives in integration to a specific subject in the learning program)

Research Mini-Task

Level 1. (Trigger interest) Choose ONE programming language that was NOT discussed in detail in the reading (examples: Ruby, Swift, PHP, Go, Rust).

Level 2 (Collect ideas, classify and order): Research it and complete the information below:

Level 3 (Design your work and present) Language Name: _____

Type (High/Low-level): _____

What it is used for: _____

One interesting fact: _____

Companies or projects that use it: _____

Reflection

What was the most interesting thing you learned about programming languages in your investigation?

Level 4. Assessment targets both dimensions: a simple rubric check whether the recommendation is logically supported by the evidence gathered (process) and whether the target justification language was used accurately (language).

Discussion

In addition, inquiry-based planning allows students to practise the reasoning and justification involved in professional IT communication, rather than practising linguistic features in isolation. Analytical reasoning that integrates specific

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subjects increases students' involvement in the learning process, which is much higher than when they are taught with ready-made planning. It also tends to lead to higher levels of learner investment, because the driving question is framed as a genuine problem that learners need to solve, rather than a pretext for practising a structure.

On the other hand, there are real-world limitations. Preparing to teach in this way takes longer than preparing for a traditional, presentation-based approach because teachers have to find or create materials that invite investigation rather than simply exemplifying a grammatical point. Students may need more scaffolding than the model assumes, particularly in contexts where schooling stresses rote learning and following instructions over independent thinking. Overlapping in critical thinking and reflection over the topic being learnt mainly results in short term memory production, which leads to timely background knowledge investigation. Many classes in Uzbek higher education are large and follow fixed schedules, making it difficult to allow for investigation. Because of limited physical hours, discussion phases of the inquiry cycle within a single class session. This is one reason why the default starting point is a guided level of inquiry.

Conclusion

The cycle of inquiry moves the unit of design in ESP from the syllabus of "what to teach" to the syllabus of "what problem learners will investigate and what language they will need to investigate it". This is particularly the case with IT-track ESP, since professional competence in IT is itself an investigatory activity The staged framework proposed here — orientation, conceptualization, investigation, conclusion, with discussion running throughout — offers a workable, guided-inquiry starting point that can be adapted to a single class period without requiring the more resource-intensive open-inquiry projects associated with the approach in other subject areas.

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