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The Effects of Teaching English for Specific Purposes (ESP) on Sudanese Undergraduate Students: A Case Study of Sudan University of Science and Technology

Ahmed Ali Fadlalla Rabih¹, Amna Mohamed Abdulkarim Bedri²

¹English Language Department, Faculty of Education ,Sudan University of Science and Technology, Sudan

²Assoc. Prof. Ahfad University for Women, Sudan

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Abstract

This study investigates the effects of English for Specific Purposes (ESP) instruction on undergraduate students at Sudan University of Science and Technology (SUST), focusing on three factors: discipline-specific language proficiency, learner motivation, and perceived workplace readiness. The methodology adopted is a qualitative-dominant case study design employing a structured questionnaires, semi-structured interviews, and classroom observations to generate both quantitative trends and qualitative depth. The sample constitutes fifty undergraduate students from the Faculties of Engineering and Business Studies, selected through purposive sampling, participated alongside four ESP instructors. The most important findings are that ESP instruction produced measurable gains in discipline-specific language proficiency, significantly increased intrinsic motivation through perceived relevance, and enhanced students' confidence in professional communication tasks. Key barriers included insufficient teacher training in technical domains and a shortage of locally adapted materials. The study concludes that transitioning from General English to needs-based ESP instruction is essential for aligning Sudanese higher education with contemporary labour market demands.

Keywords: English for Specific Purposes; undergraduate students; employability; Sudan; needs analysis; workplace readiness; language proficiency

1. Introduction

Despite completing compulsory English courses, many Sudanese university graduates struggle to meet the English communication expectations of employers in sectors such as engineering, banking, and healthcare (Ibrahim & Hassan, 2024). This gap reflects a fundamental mismatch between English instruction in most Sudanese institutions and the needs of the workplace. These courses follow a General English (GE) model that prioritizes grammatical structure and decontextualized reading over the professional genres and discipline-specific discourse that workplaces demand (Elhassan, 2023). Employers consistently identify functional English communication technical writing, professional correspondence, and oral presentation as among the most critical deficiencies in new graduates (Ahmed & Abdalla, 2023).

English for Specific Purposes (ESP) offers a direct response to this problem. By anchoring instruction in the communicative demands of learners' target professional contexts, ESP aligns language teaching with occupational and academic need rather than generalized linguistic goals (Hutchinson & Waters, 1987; Dudley-Evans & St. John, 1998). While ESP has been widely adopted in East Asian, European, and Middle Eastern higher education systems, empirical investigation of its effects in the Sudanese context remains limited. Studies documenting actual outcomes of proficiency gains, motivational shifts, and perceived employability within Sudanese institutions are largely absent from the literature (Bedri, 2006; Elhassan, 2023). This empirical gap is the central problem this study addresses and it provides evidence-based support for curriculum reform and contributes empirical data from an underrepresented African context to the broader ESP literature.

2. Literature Review

2.1 ESP: Theoretical Foundations and Current Trends

The core premise of ESP is that language learning is most effective when content and method are driven by the learner's specific reason for learning (Hutchinson & Waters, 1987). Dudley-Evans and St. John (1998) operationalized this through three defining characteristics: ESP meets specific needs identified through analysis; it employs the methodology and discourse of the target discipline; and it focuses on language grammar, lexis, register, and genre appropriate to those disciplinary activities. These principles distinguish ESP from GE instruction, which addresses language in the abstract rather than in context.

Recent scholarship has extended this foundation in two directions. Rahmatullah et al (2026), in a hybrid systematic review and bibliometric analysis of ELT paradigm shifts, identify a global movement toward integrating digital literacy and professional competency within ESP, requiring programs to develop beyond vocabulary instruction toward complex communicative performance. Bonar and Keary (2026) further demonstrate, through a systematic review in a middle-income country context, that resource constraints and inadequate teacher

preparation are recurrent barriers to effective ESP implementation in developing nations findings directly relevant to the Sudanese setting.

2.2 Needs Analysis and Curriculum Design

Needs analysis systematic investigation of the communicative demands learners will face in their target contexts is the methodological foundation of ESP curriculum design (Long, 2005). Pang et al. (2025), in a systematic literature review on needs analysis in higher education ESP, establish that robust programs require multi-stakeholder input from students, subject specialists, and employers, and that needs assessment must be an ongoing rather than one-time process. Mao et al. (2024), studying ESP in art and design colleges, demonstrate that curriculum alignment with field-specific professional genres produces measurable gains in both student engagement and skill acquisition. In African and developing-country contexts, however, Talib et al. (2025) document systemic barriers rigid institutional policies, scarcity of authentic materials, and absence of inter-faculty collaboration that impede genuinely needs-responsive curriculum design.

2.3 Motivation, Situated Learning, and Workplace Readiness

Motivation in ESP can be productively analysed through Self-Determination Theory (Deci & Ryan, 2000), which holds that intrinsic motivation is sustained when learners experience autonomy, competence, and relatedness. ESP's emphasis on field-relevant content directly addresses relatedness (students perceive the learning as connected to their professional identities) and competence (students engage with language they already understand conceptually from their disciplines). Situated Learning Theory (Lave & Wenger, 1991) complements this by arguing that learning is most durable when embedded in authentic contexts of use. ESP classrooms that simulate professional scenarios report drafting, client consultation, technical presentations function as communities of practice that prepare students for workplace entry (Radovanova, 2025). Together, these theoretical lenses predict that ESP instruction will produce both motivational and readiness outcomes, and it is against these predictions that this study's findings are evaluated.

3. Research Questions

The study is guided by three research questions:

1. How does ESP instruction affect Sudanese undergraduate students' discipline-specific language proficiency?
2. What impact does ESP instruction have on students' motivation and engagement compared to their prior General English experience?
3. To what extent does ESP instruction enhance students perceived readiness for workplace communication?

4. Methodology

4.1 Research Design

This study adopts a qualitative-dominant case study design (Yin, 2018). Case study methodology is appropriate here because it enables in-depth examination of a bounded system the ESP classroom environment at a specific Sudanese institution within its real-world institutional and sociolinguistic context (Stake, 1995). The qualitative dominance reflects the study's primary interest in students' subjective experiences, perceptions, and meaning-making processes, which quantitative measures alone cannot adequately capture. Structured questionnaires are integrated to identify broader distributional trends across the sample, consistent with mixed method approaches now standard in applied linguistics research (Rahmatullah et al., 2026).

4.2 Research Context and Participant Selection

The study was conducted at Sudan University of Science and Technology (SUST), Khartoum, selected for three reasons: its status as a leading technical and vocational institution in Sudan; its established ESP courses across multiple faculties; and its relatively diverse student population providing variation in academic background and English exposure. Two faculties were included Engineering and Business Studies representing disciplines with well-documented, distinct professional communication needs (Pang et al., 2025; Mao et al., 2024), which enables cross-disciplinary comparison.

Student participants ($n = 50$) were selected through purposive sampling to ensure disciplinary representation (25 Engineering, 25 Business Studies), gender balance, and variation in academic performance level (high, mid, and lower-performing students as identified by faculty records). Purposive sampling was chosen over random sampling because the study required participants with direct, comparable experience of both GE and ESP instruction; all participants had previously completed a minimum of two semesters of compulsory General English, providing the experiential baseline necessary for comparative assessment. The instructor participants ($n = 4$) were selected to represent variation in ESP teaching experience (ranging from two to eleven years), ensuring that teacher perspectives reflected the full spectrum of practitioner expertise present in the institution.

4.3 Data Collection Instruments

Questionnaire. A structured questionnaire was administered to all 50 student participants. The instrument comprised three sections: (a) Likert-scale items (1–5) measuring self-perceived discipline-specific proficiency, motivation levels, and confidence in professional communication tasks; (b) comparative items asking students to rate their current ESP experience against prior GE instruction on the same dimensions; and © open-ended items inviting elaboration on perceived strengths and weaknesses of the ESP course. The

questionnaire was adapted from validated ESP evaluation instruments reported in the literature (Pang et al., 2025) and piloted with five students not in the main sample to check clarity and internal consistency.

Semi-Structured Interviews. Individual interviews were conducted with a purposively selected subsample of 10 students (five from each faculty, selected to represent performance variation) and all four instructors. The student interview protocol addressed: perceived changes in language proficiency, motivation, and professional confidence; specific course features experienced as most and least valuable; and comparisons with prior GE experience. The instructor protocol focused on observed student progress, instructional challenges, resource availability, and institutional support. Interviews lasted 30–45 minutes, were conducted in English, and were audio-recorded with participants informed written consent.

Classroom Observations. Six non-participant observations were conducted across the semester, distributed evenly across the two faculties (three per faculty). An observation protocol adapted from established instruments in ESP research documented: student participation rates and engagement patterns; the types of disciplinary tasks and materials deployed; teacher-student interaction quality; and the extent to which authentic professional scenarios were integrated into instruction. Field notes were compiled immediately following each session and subsequently coded alongside interview transcripts.

4.4 Data Analysis

Qualitative data interview transcripts and open-ended questionnaire responses were analysed **using reflexive thematic analysis** (Braun & Clarke, 2006). Analysis proceeded through six phases: familiarization with the data; generation of initial codes (e.g., *vocabulary applicability, career relevance, spontaneous speech anxiety*); searching for themes; reviewing and refining themes; defining and naming themes; and producing the written analysis. Two broad organizing themes were identified inductively: *learning effectiveness* (encompassing proficiency and skill development) and *affective engagement* (encompassing motivation, confidence, and perceived relevance). Quantitative questionnaire data were analysed using descriptive statistics (means, frequencies, percentages) to characterize distributional patterns and to triangulate the qualitative findings. Trustworthiness was enhanced through member checking when key interpretive summaries were returned to eight student and two instructor participants, who confirmed that the summaries accurately reflected their experiences.

5. Findings

The findings are organized around the three research questions to ensure direct correspondence between evidence and inquiry.

5.1 Effects on Discipline-Specific Language Proficiency

Students across both faculties reported substantially greater gains in language proficiency through ESP than through prior GE instruction. Questionnaire data indicated that 82% of

respondents (41/50) rated their discipline-specific vocabulary knowledge as “improved” or “significantly improved” following ESP instruction, compared to only 34% (17/50) reporting equivalent gains from their GE courses. The qualitative data reveal the nature of this improvement in greater detail.

Engineering students reported gains concentrated in technical reading and documentation: the ability to read and interpret technical manuals, safety protocols, and engineering specifications in English. Business students reported the most salient gains in written professional genres formal email drafting, report writing, and financial correspondence. These discipline-specific improvements were directly attributable, in students’ accounts, to the course’s use of authentic field materials rather than generic textbook content. As one Engineering student explained: *“In General English, we learned about hobbies and travel. In ESP, I learned how to describe a circuit failure. This is language I actually need.”* This pattern supports the principle that narrowing instructional focus to professional contexts deepens rather than restricts proficiency development (Dudley-Evans & St. John, 1998).

One consistent gap emerged across both groups: spontaneous oral fluency in unscripted professional interactions informal networking, rapid question-and-answer exchanges remained an area of relative weakness, suggesting that current course designs prioritize prepared over spontaneous communication.

5.2 Effects on Motivation and Engagement

Perceived relevance emerged as the dominant theme explaining motivational change. Students overwhelmingly attributed increased motivation to the direct connection between course content and their professional identities. Questionnaire data showed that 88% of students (44/50) rated motivation in their ESP courses as higher than in their GE courses, with 60% (30/50) selecting the highest motivational rating.

Classroom observations corroborated this finding. Participation rates during simulated professional tasks such as role-playing client consultations, collaborating on engineering problem briefs were noticeably higher than during conventional grammar-focused segments. Observation field notes also recorded reduced anxiety during ESP-specific activities: students appeared more willing to risk communication when the context drew on their technical disciplinary knowledge rather than testing abstract language rules alone. This pattern is consistent with SDT (Deci & Ryan, 2000): when language content supports learners’ sense of competence (they already know the subject matter) and relatedness (the task connects to their professional future), intrinsic motivation increases. The findings also align with Lave and Wenger’s (1991) situated learning framework, as ESP classrooms functioned effectively as communities of professional practice.

5.3 Effects on Perceived Workplace Readiness

Students reported meaningful improvements in their perceived preparedness for professional communication. Specifically, 78% of respondents (39/50) indicated increased confidence in handling job interviews conducted in English, and 84% (42/50) reported greater confidence in producing professional written documents such as reports, proposals, and formal correspondence. The use of authentic workplace materials actual industry memos, case studies, and sector-specific reports was identified as the primary mechanism through which this confidence developed, as it demystified the conventions and register of professional English.

However, a notable limitation of perceived readiness was identified: while students felt well-prepared for *planned* communication tasks (presentations, written genres), readiness for *spontaneous* professional interaction remained low. This gap was acknowledged both in student interviews and in instructor accounts, and points to a need for developing curricular dimension.

Instructors provided a complementary perspective. All four unanimously agreed that ESP produced superior outcomes for this student population compared to GE instruction, particularly with respect to engagement and functional communication. At the same time, they consistently identified structural barriers limiting effectiveness: insufficient professional development to support technical content delivery, and a scarcity of current, locally adapted materials. As one instructor stated: *"The students are ready; the resources are not."* These instructor-identified barriers align with findings from Talib et al. (2025) regarding systemic constraints on ESP in developing-country tertiary settings.

6. Discussion

6.1 Proficiency Gains and Theoretical Alignment

The proficiency improvements documented in this study confirm the foundational claim of ESP theory: language acquisition is most efficient when contextualized within the learner's field of purpose (Hutchinson & Waters, 1987; Dudley-Evans & St. John, 1998). The specificity of reported gains engineering students improving technical reading, business students improving professional writing demonstrates that ESP's disciplinary focus produces targeted rather than generalized development, addressing precisely the competency deficits that Sudanese employers consistently identify (Ibrahim & Hassan, 2024; Ahmed & Abdalla, 2023). These findings are consistent with Mao et al.'s (2024) study of ESP in art and design contexts, where genre-aligned curriculum design produced comparable discipline-specific proficiency gains, and with Pang et al.'s (2025) meta-finding that needs-responsive ESP programs generate measurably higher skill acquisition than generic language instruction.

The persistent gap in spontaneous oral fluency among both student groups suggests a possible area for further development in the ESP curriculum at SUST. While the program supports

prepared communication, greater emphasis on improvised, real-time professional interaction may further enhance students' workplace communicative competence. This result adds something new to previous research. It shows that ESP courses still need improvement in one area: helping students speak naturally in real, workplace conversations.

6.2 Motivation and the SDT Framework

Motivational findings of the study provide contextually grounded evidence for the applicability of Self-Determination Theory (SDT) (Deci & Ryan, 2000) in the Sudanese higher education context. The dominant theme of perceived relevance driving motivational engagement corresponds precisely to SDT's construct of *relatedness*: when students perceived ESP content as connected to their professional identities, intrinsic motivation increased significantly. The observation that anxiety decreased during professional task simulations adds a psycholinguistic dimension to this finding. This aligns with Situated Learning Theory (Lave & Wenger, 1991) when language use is embedded in a context students already inhabit cognitively (their discipline), and thus the affective barriers to risk-taking in communication are reduced.

This motivational pattern contrasts sharply with the disengagement students reported in their GE courses, which were described as repetitive and disconnected from professional contexts. This contrast reinforces Pang et al.'s (2025) finding that needs analysis-driven curriculum directly links to learner satisfaction and suggests that motivation in language learning in the Sudanese university context is substantially a function of perceived occupational relevance rather than pedagogical delivery style alone.

6.3 Workplace Readiness

The improvement in perceived workplace readiness is a significant empirical finding, contributing to an evidence base on ESP outcomes in African higher education contexts that Bonar and Keary (2026) identify as critically underdeveloped. The students identified exposure to authentic professional materials as a factor that reduces the unfamiliarity of workplace genres, and which supports Radovanova's (2025) argument that authentic context integration is the key mediating variable in the contribution of ESP to employability.

6.4 Teacher Expertise Gap

The teacher expertise gap identified by instructors represents this study's most significant contribution to the policy literature. While proficiency and motivational gains were observed even within current constraints, all four instructors indicated that the absence of professional development in technical domain knowledge limited their capacity to fully exploit ESP's potential. This finding resonates with Talib et al.'s (2025) documentation of structural barriers in developing-country ESP, and with Bonar and Keary's (2026) systematic review finding that teacher preparation is the most consequential implementation variable in middle-income and

resource-constrained settings. This study extends those findings by providing institution-level qualitative evidence from a Sudanese context, where such documentation has previously been absent.

6.5 Academic Contribution

This study makes three specific contributions to the ESP literature. First, it provides empirical evidence of ESP effectiveness from a Sudanese institutional context, addressing the geographic gap in African ESP research identified by Bonar and Keary (2026). Second, it applies SDT and Situated Learning Theory to explain motivational patterns in an African EFL higher education setting, extending the theoretical reach of these frameworks. Third, it identifies spontaneous oral professional fluency as a specific and under addressed outcome gap in ESP program design, a finding with direct implications for curriculum development beyond the Sudanese context.

7. Limitations

Three limitations impede the generalizability and scope of these findings. First, as a single-institution case study, findings reflect the specific institutional culture, resource context, and student population of SUST and may not be fully transferable to other Sudanese universities, particularly those in regional or rural settings with different resource profiles. Second, the sample of 50 students is sufficient for qualitative depth and descriptive quantitative analysis but does not support inferential statistical generalizations to the broader Sudanese undergraduate population. Third, the study relies primarily on self-reported data for proficiency and assessments; objective measurement through standardized professional English assessments or direct employer evaluations of graduates would strengthen the validity of these outcomes. Future research should address these limitations through multi-site designs and the incorporation of objective proficiency measures.

8. Conclusion and Recommendations

This study provides empirical evidence that ESP instruction at SUST produced positive and meaningful outcomes across three domains: discipline-specific language proficiency, learner motivation, and perceived workplace readiness. These effects were observed despite the documented structural constraints, limited teacher professional development and a shortage of locally adapted materials suggesting that the benefits of ESP over GE instruction are robust even under non-optimal implementation conditions. The full potential of ESP in Sudan, however, remains constrained by these systemic barriers, which require coordinated institutional and policy responses.

Recommendations

For University Administrators:

Adopting the institutionalize regular, multi-stakeholder needs analysis processes (Pang et al., 2025) connecting language departments with industry partners to ensure that ESP curricula

remain current with labour market demands. Integrate ESP outcomes into institutional quality assurance frameworks.

For English Language Departments:

Establish structured professional development programs enabling ESP instructors to develop working familiarity with the disciplinary discourse of the technical fields they serve. Facilitate team-teaching arrangements between language and subject-specialist faculty as an immediate practical measure.

For Curriculum Designers:

Invest in developing locally produced ESP materials that reflect the specific professional norms, genres, and communication contexts of the Sudanese workplace, rather than relying on imported textbooks developed for different sociocultural and economic contexts (Bonar & Keary, 2026). Expand oral fluency development particularly unscripted professional interaction as a curriculum component, addressing the readiness gap identified in this study.

For National Education Authorities:

Develop policy frameworks and funding mechanisms supporting ESP research, teacher training, and curriculum development. Facilitate university-industry partnerships that provide access to authentic materials, practitioner guest contributors, and workplace placement opportunities for language skills consolidation.

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