International Journal of Humanities and Social Development

ISSN: 3224-7786
VOL. XI ISSUE: I
JAN - MAR., 2026

ENGLISH FOR SPECIFIC PURPOSES (ESP) AND INCLUSIVITY IN THE BUILT ENVIRONMENT

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KEYWORDS

English for Specific Purposes, Built Environment, Inclusivity, Systemic Functional Grammar, Curriculum Innovation.

ABSTRACT

Students in Nigeria's built environment programs often struggle to master the specialized vocabulary and professional discourse required for effective communication in their disciplines. This study investigated how English for Specific Purposes (ESP) instruction enhanced inclusivity and professional competence among students in the built environment. Anchored on Halliday's Systemic Functional Grammar, the study examined linguistic needs, pedagogical innovations, and curriculum design strategies tailored to discipline specific communication. A qualitative interpretivist design, supported by descriptive statistics, was adopted. Data were collected from 112 undergraduate Architecture students at Imo State Polytechnic, Orlu, Imo State, through pre- and post-tests, authentic assessments, and focus group interviews. It followed a 12-week ESP intervention that integrated task-based learning, bilingual scaffolding, and technology enhanced instruction. Findings revealed significant improvement in students' technical vocabulary, report writing, and oral communication, with mean performance increasing from 51.6% to 82.4% ($p < 0.001$). The reduction in performance disparity further indicated improved inclusivity among linguistically diverse learners. The study demonstrated that SFG-based ESP instruction fostered equitable learning, learner confidence, and professional readiness. It recommended the institutional adoption of inclusive, technology-driven ESP curricula in Nigerian tertiary institutions to strengthen disciplinary communication and bridge language inequalities.

I. INTRODUCTION

The built environment comprising architecture, building, estate management, surveying, and urban planning, is central to Nigeria's socioeconomic and infrastructural development. Professionals in these disciplines require not only technical expertise but also advanced communicative competence to document, negotiate, and execute projects effectively. However, students entering built environment programs often lack exposure to the specialized language that defines their professional field. "Traditional English courses in Nigerian universities focus primarily on general language skills and neglect the pragmatic, disciplinary vocabulary necessary for professional interaction" (Umera-Okeke, 2020, p. 66). ESP instruction addresses this gap by tailoring, "language learning to the communicative demands of specific disciplines" (Hutchinson & Waters, 1987, p. 19). In the built environment, precise

terminology, genre conventions, and collaborative communication are vital for success. As Okebukola (2022, p. 34) observes that Nigerian universities must adapt language curricula to reflect "industry-aligned communication competencies that prepare graduates for global engagement". Integrating ESP principles into built environment education therefore offers a pathway to improved academic performance, employability, and professional inclusivity.

The built environment is central to sustainable urban development and economic growth. It includes disciplines that deal with the planning, design, and construction of physical spaces which are inherently technical and communicative. In higher education, students in these disciplines must learn to engage with domain-specific vocabulary, interpret legal and regulatory texts, and collaborate in interdisciplinary environments. Studies have shown that traditional language instruction does not sufficiently, address these communicative demands, resulting in gaps that affect academic success and workplace performance. "ESP focuses on tailoring language instruction to meet the functional demands of specific disciplines, ensuring that learners acquire the skills necessary for effective communication within their fields", (Dudley-Evans & St. John, 1998, p. 4). Definitely, in the built environment, precise language use is critical for clear documentation, collaboration, and problem solving.

Integrating ESP into the curricula of built environment programs can enhance students' ability to navigate the communicative demands of their professions. In support of this, Lorenzo (2005) asserts that, "ESP concentrates more on language in context than on teaching grammar and language structures", (p. 1). Umera-Okeke (2020) adds that, "The aim of ESP teacher is not only to meet the learners' specific needs in the field of particular discipline but also to provide satisfying learning background", (p. 64). This relevance ensures that learners from diverse cultural and linguistic backgrounds can effectively, participate in professional discourse, fostering inclusivity and equity in the classroom and workplace. On the difference between ESP and General English, Hutchinson and Waters (1987) define ESP as "an approach to language teaching where content and methodology are based on the learners' reasons for learning", (p. 19). Unlike General English, ESP emphasizes the relevance of language to real-world tasks and professional contexts.

In today's globalized world, professionals in the built environment frequently, collaborate across cultural and linguistic boundaries. Effective ESP instruction helps bridge language gaps, ensuring that non-native English speakers can participate equally, in academic and professional contexts. As Stathopoulou (2016) notes, "the use of learner-centered approaches in ESP teaching enables students from diverse backgrounds to acquire context-based language skills, making them competitive in international markets", (p. 12). Research by Strevens (1988) further underlines that, "the adaptability of ESP curricula to meet specific learner needs. By focusing on targeted language areas such as technical documentation and design presentations, ESP courses prepare students for real-world challenges while promoting active engagement in their learning process", (p. 31). "The integration of authentic materials, including project plans and architectural case studies, further enhances the relevance of ESP instruction", (Hutchinson & Waters, 1987, p. 59). Globally, according to studies, only few countries have included ESP into their curricula.

The significance of inclusivity in language learning cannot be overstated. Many Nigerian students from rural or underprivileged backgrounds enter university with uneven English proficiency. "When language instruction is not discipline-specific such students are doubly disadvantaged linguistically and academically" (Adebayo & Ogunbanjo, 2021, p. 45). Inclusive ESP teaching should ensure equitable participation by incorporating bilingual glossaries, visual aids, and context-based tasks that bridge linguistic diversity.

II. STATEMENT OF THE PROBLEM

The built environment disciplines are inherently language intensive professions. These fields rely heavily on precise communication for documenting designs, interpreting regulations, presenting proposals, writing reports, collaborating with multidisciplinary teams, and negotiating with clients and stakeholders. Success in these professions depends not only on technical competence but also on the ability to understand and produce specialized professional discourse. However, in many Nigerian tertiary institutions, language education for students in these disciplines remains largely confined to General English courses that focus on broad grammar, essay writing, and comprehension skills without addressing the discipline specific linguistic demands students' encounter in their academic and professional training.

This mismatch between the language instruction provided and the communicative realities of the built environment creates a significant gap in students' learning experiences. Students are expected to read and interpret building codes, construction specifications, feasibility studies, environmental impact reports, and architectural drawings. Unfortunately, they receive little or no formal training in the language patterns, vocabulary, genres, and discourse practices that characterize such texts. As a result, many learners struggle to interpret technical documents, produce professional reports, and articulate design ideas clearly during studio critiques and presentations. This challenge becomes even more pronounced during industrial training and early career practice, where communication breakdowns can lead to costly errors, project delays, and safety risks.

The problem is further compounded by the linguistic diversity of students admitted into Nigerian tertiary institutions. Many learners come from rural communities, public schools, and socioeconomically disadvantaged backgrounds where exposure to academic English is limited. These students often possess uneven language proficiency, and when they are placed in built environment programs that demand advanced technical communication, they find themselves doubly disadvantaged, both linguistically and academically. Without targeted support, such learners experience reduced confidence, limited participation in classroom interactions, and difficulty engaging with course materials. Over time, this can lead to poor academic performance, withdrawal from collaborative learning, and diminished professional readiness.

Despite the global recognition of ESP as an effective approach for addressing discipline specific communication needs, its integration into Nigerian built environment curricula remains minimal. Where ESP is offered, it is often treated as an elective or theoretical course without practical alignment to the communicative tasks students perform in their departments. There is limited collaboration between language instructors and built environment lecturers to design contextualized learning materials based on authentic professional texts such as blueprints, site reports, tender documents, and regulatory guidelines. Consequently, students continue to learn English in isolation from the real communicative contexts of their fields.

Another dimension of the problem lies in the pedagogical approaches currently employed in language instruction. Many English courses in tertiary institutions are teacher-centered and examination driven. They emphasize memorization and written tests rather than practical, task-based activities. This approach does not prepare students for the collaborative and interactive nature of professional communication in the built environment, where teamwork, oral presentations, negotiation, and problem-solving are essential. The absence of simulations, role-plays, peer collaboration, and authentic tasks deprives students of opportunities to practice the kinds of communication they will need in their careers. Inclusivity is also a major concern. Traditional language instruction often fails to account for the multilingual realities of Nigerian classrooms. Students who are less fluent in English may hesitate to participate in discussions, ask questions, or present ideas, especially in technically demanding courses like architecture and engineering. Without inclusive strategies such as bilingual scaffolding, visual aids, multimodal learning resources, and collaborative peer support, these learners remain marginalized in classroom discourse. This exclusion contradicts the broader goals of equitable education and undermines the potential of many capable students.

Furthermore, the rapid globalization of the built environment sector demands professionals who can communicate across cultural and linguistic boundaries. Nigerian graduates increasingly participate in international projects, collaborate with foreign partners, and engage with global standards of practice. Yet, current language instruction does not adequately prepare students for intercultural communication, professional etiquette, and the genre conventions of global professional discourse. This limits their competitiveness in the international labor market. Technology presents another missed opportunity. While digital tools such as learning management systems, mobile learning platforms, AI writing assistants, and virtual simulations have the potential to enhance ESP instruction, they are rarely integrated into language teaching in built environment programs. The lack of technology enhanced ESP deprives students of interactive, flexible, and engaging learning experiences that could significantly improve their communication skills. Importantly, there is limited empirical research in Nigeria that demonstrates how ESP integration can improve both linguistic competence and inclusivity among built environment students. Policymakers and curriculum designers often lack concrete evidence to justify restructuring language courses to align with disciplinary needs. Without such evidence, General English continues to dominate the curriculum, perpetuating the

communication challenges students face.

Therefore, the central problem this study addresses is the persistent disconnect between language education and the professional communication needs of students in built environment disciplines in Nigerian tertiary institutions. This disconnects results in linguistic inequities, reduced learner confidence, poor academic performance in technical courses, and inadequate preparation for workplace communication. There is an urgent need for a contextualized, inclusive, and technology enhanced ESP framework that aligns language instruction with the real communicative tasks of the built environment while addressing the diverse linguistic backgrounds of learners. This study responds to this need by investigating how an SFG-based ESP intervention, designed around authentic tasks, bilingual scaffolding, collaborative learning, and technology integration, can enhance inclusivity and professional competence among built environment students. By providing empirical evidence from a case study at Imo State Polytechnic, Orlu, the research seeks to demonstrate that ESP is not merely a language course but a transformative pedagogical tool capable of bridging language disparities, improving academic outcomes, and preparing students for professional practice.

Objectives of this Study

This study aims to examine the integration of ESP into built environment curricula in Nigerian tertiary institutions with emphasis on inclusivity and professional competence. Specifically, it seeks to:

Identify the linguistic and communicative needs of students in built environment disciplines.

Examine the role of ESP in preparing students for industry specific communication, including technical writing, professional discourse, and cross disciplinary collaboration.

Develop a technology-driven framework for ESP integration that promotes inclusive learning outcomes.

Recommend policy and pedagogical practices that enhance professional competence among built environment students.

Research Questions

To achieve these objectives, the following research questions guided the study:

What are the specific language and communication needs of students in built environment programs in Nigerian tertiary institutions?

How does ESP instruction influence students' professional communication skills and inclusivity in learning?

What innovative, technology-enhanced strategies can support effective ESP integration in built environment curricula?

In what ways can ESP-based reforms improve learners' academic success and workplace readiness?

Significance of this Study

Provides empirical evidence on how ESP can be adapted to meet the linguistic needs of built environment students in Nigerian tertiary institutions.

Contributes to ongoing study on language education reforms and inclusive pedagogy in higher education.

Offers curriculum designers and policymakers' practical insights into technology-enhanced, learner-centered ESP approaches.

Promotes equitable language learning by incorporating strategies for students from diverse socioeconomic and linguistic backgrounds.

Strengthens interdisciplinary communication competencies essential for sustainable development in Nigeria's construction and design sectors.

Theoretical Framework

This study is anchored on Halliday's Systemic Functional Grammar (SFG) (1985), which conceptualizes language as a social semiotic system shaped by context and function. SFG is especially relevant to ESP because "it links linguistic forms to communicative purposes, thereby enabling analysis of how language operates in specialized disciplines" (Halliday & Matthiessen, 2014, p. 21). According to SFG, language performs three metafunctions (i) Ideational, which expresses content and technical knowledge. (ii) Interpersonal, which negotiates relationships and attitudes; and (iii) Textual, which organizes information cohesively. Also, according to Halliday (1985, p. 10), "The function of language is to create and maintain social relationships".

In the built environment, professionals use language to describe technical processes, e.g.,

the load-bearing capacity of the beam must meet structural requirements. Communicate design intentions, e.g., the façade should maximize natural light. Interpret regulations and codes, e.g., zoning laws or safety standards.

The ideational function explains how language represents ideas, technical knowledge, and real-world experiences. In the built environment, this includes describing structural processes (e.g., load distribution, reinforcement), explaining design concepts, writing site inspection and feasibility reports, and interpreting building codes and specifications. ESP instruction grounded in this metafunction teaches students how to express technical content accurately using appropriate vocabulary, nominalizations, and technical collocations common in professional discourse.

The interpersonal function focuses on how language establishes relationships, expresses attitudes, and negotiates meaning between participants. In built environment practice, this occurs when presenting design ideas to clients, negotiating contracts, participating in team meetings, and giving professional instructions on site. Through this metafunction, ESP helps students learn the tone, modality, politeness strategies, and professional register required for effective workplace communication.

The textual function explains how language is structured into coherent and cohesive texts. Built environment professionals must produce well-structured reports, logical project proposals, and coherent technical documentation. ESP informed by SFL teaches students how to organize information logically using cohesive devices, thematic progression, and genre structure.

SFG provides tools for analyzing how language serves these purposes, enabling learners to develop context appropriate linguistic competencies. SFG also emphasizes the importance of register field (what is happening), tenor (who is involved), and mode (how communication occurs) in shaping language use. These elements are critical for tailoring ESP instruction to the specific communicative contexts of the built environment. For instance, a project proposal may require a formal tone, precise technical vocabulary, and a persuasive structure, while a team meeting may involve less formal language and more interactive dialogue. Applying SFG to ESP allows instructors to dissect authentic disciplinary genres like feasibility reports, blueprints, and design justifications, and teach their linguistic features explicitly. As Martin (1992, p. 89) observes, "The value of SFG lies in its capacity to reveal how specialized meanings are realized through patterned grammatical choices". Through this approach, learners develop awareness of register (field, tenor, and mode), enhancing their ability to use English appropriately across professional contexts.

III. METHODOLOGY

Research Design

The study employed a qualitative interpretivist design supported by descriptive quantitative analysis to evaluate the impact of an ESP intervention on students' communicative competence.

Population and Sampling Technique

The population comprised all 180 undergraduate students enrolled in the Architecture Program of the Faculty of Environmental Sciences, Imo State Polytechnic, Orlu during the 2023/2024 academic session. Using purposive sampling, a representative sample of 112 students (62.2% of the total population) was selected for the study.

Method of Data Collection

Data were collected through pre- and post-tests, authentic written tasks, and focus group discussions. Quantitative data from test scores were analyzed using SPSS (Version 25) for descriptive and inferential statistics, while qualitative data from interviews underwent thematic content analysis to identify patterns of learner progress and inclusivity.

Analysis

Language Needs in the Built Environment

Language needs in the built environment encompass the communication demands, linguistic features, and challenges in acquiring technical language skills relevant to architecture, urban planning, quantity surveying, engineering, and construction management. Mastery of field specific language enhances learners' confidence and ability to perform tasks effectively. Flowerdew and Peacock (2001) argue that, "professional competence is rooted in the ability to understand and produce specialized discourse", (p. 178). These fields require a specialized vocabulary and communication strategies to convey technical, legal, and conceptual information, accurately. Dudley-

Evans and St. John (1998) outline key principles of needs analysis. They are, "determining learners' goals like understanding technical jargon, interpreting building codes, and collaborating across disciplines", (p. 121). The pedagogical approach of intersection of language and professional practices ensure that students are well prepared to handle both the technical and communicative demands of their careers. This not only enhances their academic learning but also boosts their employability and effectiveness in real world settings.

Professionals work collaboratively with multidisciplinary teams, including engineers, architects, urban planners, construction workers, and stakeholders. Effective communication ensures clarity in design intentions, compliance with regulations, and successful project execution. According to Laurillard (2012), "communication in technical fields requires the integration of domain specific language with practical problem-solving skills", (p. 45). Miscommunication can lead to errors, delays, or safety hazards, highlighting the importance of precise language. Language needs here include: (1) Technical documentation, "writing reports, blueprints, and specifications", (Hyland, 2000, p. 36). (2) Oral communication like, presenting ideas to clients, negotiating contracts, and discussing project details with teams. (3) Visual communication like, interpreting and discussing architectural drawings and models (Beaufort, 1999). (4) Regulatory language in terms of understanding and applying legal codes and building regulations.

The language of the built environment is characterized by its technicality, precision, and interdisciplinary nature. Halliday (1993) emphasizes the "significance of field specific lexis in professional discourse, arguing that specialized language facilitates accuracy in communication" (p. 87). Features include: (1) Technical vocabulary terms like, cantilever, load-bearing wall, and zoning ordinances are central. (2) Abbreviations and acronyms which are common in construction, e.g., Building Information Modeling (BIM), Heating, Ventilation, and Air Conditioning (HVAC). (3) Imperative language that are used in directives and instructions, e.g., Align the beam before installation. (4) Multimodal texts in combining diagrams, numerical data, and written text to convey complex information.

Students in the built environment must develop mastery of technical and interdisciplinary discourse. The communicative demands involve understanding blueprints, interpreting codes, drafting project reports, and presenting design ideas clearly. Flowerdew and Peacock (2001, p. 178) argue that professional competence depends on "the ability to interpret and produce specialized discourse". The needs analysis revealed that students struggled with industry-specific terminology, abbreviations (e.g., HVAC, BIM), and multimodal communication integrating drawings, data, and text. These findings align with Hyland's (2006, p. 97) observation that "ESP fosters discipline-based literacy by connecting language learning with professional contexts". Common linguistic features identified include technical vocabulary: e.g., cantilever, load-bearing, tensile strength. Imperative constructions used in instructions and directives e.g., Align the beam before installation. Nominalization for technical precision e.g., reinforcement of structural elements. Abbreviations/acronyms that require contextual understanding. As Halliday (1993, p. 87) noted, "field-specific lexis ensures accuracy in communication". Thus, an ESP curriculum for built environment education must explicitly teach these features within authentic tasks.

Pedagogical Strategies for Inclusivity through ESP

ESP serves as a vehicle for equity by tailoring instruction to learners' needs and socio-linguistic realities. Students in built environment programs come from diverse linguistic and socio-economic backgrounds. Many have limited exposure to academic English and therefore face barriers to effective participation. Hyland (2006, p. 102) notes that inclusivity in ESP "requires pedagogies that respect learner diversity while aligning with disciplinary discourse". In this study, inclusive ESP strategies include task-based learning, engaging students in real-world simulations such as site meetings or client presentations. Collaborative learning, through peer editing, group report writing, and presentations. Multilingual scaffolding, via bilingual glossaries (English–Igbo) to reduce linguistic exclusion. Use of visuals like annotated drawings and diagrams, to enhance comprehension. Adebayo and Ogunbanjo (2021, p. 47) emphasize that "contextual learning materials narrow the achievement gap between urban and rural learners". This approach not only supports weaker students but enriches classroom interaction for all.

Another important aspect of promoting diversity and inclusion through ESP is addressing the needs of underrepresented groups, like women and individuals from rural or disadvantaged

communities, who may face additional challenges in accessing built environment education. "ESP focuses on equipping students with language skills tailored to their specific professional domains, enabling them to effectively communicate technical ideas, understand industry specific documentation, and collaborate in interdisciplinary environments", (Basturkmen, 2010, p. 17). For example, teaching negotiation skills or client interaction techniques can help students overcome workplace biases and establish themselves as competent professionals.

Furthermore, integrating ESP into built environment education aligns with the global trend toward sustainability and social responsibility. The built environment sector plays a crucial role in addressing issues like urbanization, climate change, and affordable housing, which require collaboration among diverse stakeholders. By equipping students with language skills and cultural awareness, ESP prepares them to contribute meaningfully to these initiatives and work effectively in multicultural teams. Ultimately, promoting diversity and inclusion through ESP integration ensures that built environment education is accessible to all learners, regardless of their linguistic or cultural background. It empowers students to overcome communication barriers, fosters mutual respect, and prepares them for the collaborative and dynamic nature of their professional fields. This approach not only benefits individual learners but also strengthens the built environment sector by creating a more inclusive and skilled workforce.

Case Study at Imo State Polytechnic Orlu

The case study was conducted at Imo State Polytechnic, Orlu, within the Department of Architecture, Faculty of Environmental Sciences. It examined how a purpose built ESP module could enhance communicative competence and inclusivity among undergraduate students of the built environment. Digital integration was a crucial component. The Tech Enhanced ESP for built environment (TE-ESP-BE) framework leveraged accessible technologies to promote active learning and inclusivity. Tools included learning Management Systems (Moodle) for accessing readings and submitting assignments. Mobile based microlearning on construction vocabulary via WhatsApp groups. AI feedback tools (Grammarly, QuillBot) for writing accuracy. AR/VR simulations (low-cost) for site report role-play and blueprint exploration. This aligns with Salaberry's (2001, p. 41) assertion that "technology enriches language learning when pedagogically aligned". Digital access also addressed inequities for part-time and remote learners. A 12-week ESP intervention was implemented during the 2023/2024 academic session. The module was collaboratively designed by lecturers from the Department of Architecture and the GNS Unit. The content was sequenced as follows;

Weeks Focus Areas

1-2 Introduction to ESP and vocabulary acquisition in architecture and building technology.
3-4 Reading and interpreting technical drawings, specifications, and building codes.
5-6 Writing construction reports, feasibility studies, and technical memos.
7-8 Oral communication and presentations involving client briefings, project justifications.
9-10 Group projects with collaborative problem-solving aspects, and design proposals.
11-12 Peer feedback sessions and final presentations.

Each lesson integrated bilingual scaffolding (English–Igbo), visual aids, and real-life professional documents to ensure inclusivity. Students worked collaboratively in groups, simulating authentic professional communication situations.

Pre-Test Administration

Before instruction began, all 112 students completed a diagnostic pre-test designed to assess their baseline language competence. The pre-test contained three sections. These three sections were;

Technical Vocabulary Test (30 marks): Matching 30 architecture and construction terms to definitions and usage examples.

Reading Comprehension (40 marks): An excerpt from a Nigerian building regulation document requiring inference and vocabulary-in-context skills.

Written Task (30 marks): A 150–200-word site inspection report based on a sample project brief.

Scores were standardized and graded with rubrics assessing lexical accuracy, coherence, and register appropriateness. The overall mean pre-test score was 51.6% (SD = 8.9). Observations revealed frequent lexical confusion, vague expressions, and minimal use of technical collocations.

Many students also expressed low confidence when asked to explain their written work orally.

Post-Test Administration

After twelve weeks of ESP instruction, the same students undertook a post-test equivalent in structure and difficulty to the pre-test but using different texts and vocabulary sets. The marking criteria remained identical for comparability. The mean post-test score rose to 82.4% (SD = 7.2), showing substantial improvement across all components. Below is the table showing the difference in pre-test and post-test.

Table 1: Comparison between Pre-Test and Post-Test

Test Component	Pre-Test Men (%)	Post-Test Mean (%)	Gain (%)
Technical Vocabulary	53	84	+31
Reading Comprehension	50	81	+31
Written Task	52	82	+30
Overall Average	51.6	82.4	+30.8

A paired sample t-test conducted using SPSS Version 25 showed a statistically significant difference between pre- and post-test scores, $t(111) = 16.83$, $p < 0.001$. This result confirms that the ESP intervention produced a significant positive effect on students' communicative competence. The reduction in standard deviation from 8.9 to 7.2 also indicates less performance disparity, reflecting greater inclusivity and equitable learning outcomes.

Qualitative Findings

To complement the quantitative results, focus group discussions were held with 24 randomly selected participants (12 male and 12 female) after the module. Key themes included:

Improved Vocabulary Mastery

Students reported being able to use technical terminology accurately in class discussions and written reports. 'I now understand and use words like 'reinforcement', 'cantilever', and 'zoning' correctly'. Blessing, 200-level student.

Increased Confidence and Participation

'Before this course, I couldn't explain my design ideas clearly. Now I can speak confidently during studio reviews'. Chukwudi, 300-level student.

Collaborative Learning and Peer Support

Students appreciated the team-based projects that allowed knowledge sharing and active participation, especially for those less fluent in English.

Lecturers observed significant improvement in the clarity, accuracy, and professionalism of students' oral and written submissions. Reports and presentations reflected not only stronger linguistic control but also better analytical reasoning.

The findings demonstrate that ESP instruction grounded in SFG principles significantly, enhanced both language proficiency and inclusivity among built environment students. The average performance gain of over 30 percentage points represents not only linguistic improvement but also growing confidence in technical communication. The use of task-based learning and bilingual scaffolding contributed to higher engagement, particularly among students from underprivileged backgrounds. Moreover, the reduction in performance variance suggests that the ESP intervention helped bridge existing linguistic inequalities within the cohort. These outcomes align with Akinola and Adedokun (2022, p. 81), who found that contextualized ESP lessons improved professional discourse mastery among engineering students in South-West Nigerian universities. Similarly, Ezenwa-Ohaeto (2024, p. 28) noted that inclusive ESP practices "level the communicative playing field by giving all learners tools to express disciplinary knowledge confidently".

ESP instruction raised the average language performance from 51.6% to 82.4%, a statistically significant improvement ($p < 0.001$). The standard deviation reduction (8.9 → 7.2) signifies greater inclusivity and reduced disparity between high- and low-performing students. Students reported improved confidence, accuracy, and vocabulary depth. Lecturers observed higher-quality professional communication and increased student engagement. The findings validated ESP as

an effective model for inclusive language teaching in Nigerian higher institutions.

Policy Framework

The findings of this study reveal an urgent need for institutional and national policies that recognize ESP as an essential component of professional education in the built environment. This policy framework provides structured guidelines for sustainable ESP integration at institutional, faculty, and national regulatory levels.

Tertiary institutions offering built environment programs should adopt a formal policy that makes ESP a compulsory, credit bearing course embedded within the departmental curriculum rather than a General Studies elective. The policy should specify that ESP modules be introduced at early and intermediate stages of study when students begin to engage with technical documentation, design communication, and professional reporting tasks.

Institutions should establish a policy mandating collaboration between: (i) English Language Units / General Studies Departments. (ii) Faculties of Environmental Sciences and Built Environment Departments. This collaboration ensures that ESP content is developed from authentic disciplinary materials such as blueprints, feasibility reports, site inspection documents, building regulations, and project proposals.

Before ESP courses are designed or reviewed, institutions should mandate formal needs analysis within each built environment department. This policy ensures that ESP content is based on: (i) Real communicative tasks students perform. (ii) Linguistic challenges observed by lecturers. (iii) Industry communication requirements.

ESP curriculum policy should adopt Halliday's Systemic Functional Grammar (SFG) as a guiding theoretical framework. This ensures that teaching focuses on ideational meanings (technical content expression), interpersonal meanings (professional interaction), and textual meanings (organization of professional texts).

Institutions should mandate inclusive ESP strategies that address linguistic diversity. This includes bilingual glossaries (e.g., English–Igbo support), visual and multimodal teaching materials, peer collaboration and task-based learning, and support for students from disadvantaged educational backgrounds.

A policy should require the integration of technology into ESP delivery through learning Management Systems (LMS), mobile learning platforms (e.g., WhatsApp microlearning), AI writing feedback tools, and digital simulations for interpreting drawings and reports. Institutions must provide the digital infrastructure to support this.

Regular professional development workshops should be mandated for English lecturers to gain expertise in ESP course design, application of SFG, task-based teaching methods, and use of digital tools for ESP instruction.

ESP assessment should be policy guided to include report writing, oral presentations, interpretation of technical texts, and collaborative documentation tasks. This replaces sole reliance on traditional written examinations.

Institutions must allocate funding for development of ESP teaching materials, discipline specific glossaries and manuals, access to professional documents and digital resources, and technology tools supporting ESP.

Regulatory bodies should incorporate ESP benchmarks into accreditation standards for built environment programs. Accreditation teams should assess presence of ESP modules, evidence of interdisciplinary collaboration, use of authentic materials and inclusive strategies, and technology integration.

The policy should encourage replication of ESP integration in other technical and professional fields like engineering, agriculture, environmental science, and medical sciences.

Implications for this Study

This study demonstrates that General English courses are insufficient for students in professional disciplines such as the built environment. The significant improvement in students' performance after the ESP intervention implies that English language teaching in Nigerian higher institutions must move from generic grammar-based instruction to discipline specific communication training. English courses should be redesigned to reflect the communicative realities of students' academic and professional contexts. This marks a shift from learning English to using ESP.

The findings imply that ESP curriculum must be grounded in authentic professional tasks

rather than theoretical language exercises. Curriculum designers should prioritize real-life materials such as technical reports, design briefs, regulatory documents, and project proposals. The success of the task-based approach shows that students learn language more effectively when it is embedded in practical disciplinary activities.

The reduction in performance disparity among students indicates that ESP can serve as a powerful tool for inclusivity. Learners from rural, public school, and disadvantaged backgrounds benefited greatly from bilingual scaffolding, visual aids, and collaborative learning. This implies that inclusive strategies should be central, not peripheral, in language instruction across Nigerian institutions.

The effectiveness of the intervention validates Halliday's SFG as a practical framework for ESP teaching. The metafunctions of language (ideational, interpersonal, textual) helped students understand how professional meaning is constructed. This implies that SFG should be more widely adopted in ESP and EAP teaching, particularly in professional and technical disciplines.

The success of simulations, role-plays, report writing, and group projects implies that teacher-centered, lecture based language teaching is inadequate for professional preparation. Language teaching should adopt task-based, collaborative, and experiential methods that reflect workplace communication practices.

The positive role of digital tools like WhatsApp microlearning, AI writing assistants, and LMS platforms implies that technology enhanced ESP (TE-ESP) can significantly improve engagement, accessibility, and learning outcomes. This suggests that digital integration should become a standard component of ESP instruction.

Students' increased confidence in studio discussions and presentations implies that language competence directly influences academic participation. When students possess the vocabulary and discourse skills of their field, they engage more actively in learning. This underscores the relationship between language mastery and academic success.

The improvement in students' ability to write reports, interpret technical texts, and present design ideas implies that ESP contributes directly to workplace readiness. Graduates who undergo ESP training are likely to perform better during industrial training and early career practice, reducing communication-related errors in the field.

The study highlights the need for collaboration between English lecturers and built environment professionals. This implies that ESP cannot function effectively in isolation within General Studies units. Interdepartmental cooperation is essential for producing relevant ESP content.

The strong empirical evidence from this study implies that regulatory bodies such as NUC and NBTE should recognize ESP as essential for professional programs. ESP benchmarks should be included in accreditation requirements for built environment and other technical disciplines.

The findings imply that ESP can help bridge long-standing linguistic inequalities among students in Nigerian tertiary institutions. By aligning language teaching with students' fields of study and incorporating inclusive strategies, institutions can promote equitable learning opportunities.

This study provides a model that can be replicated in other disciplines like engineering, agriculture, and medical sciences. It implies a need for broader national research into ESP as a tool for curriculum reform across professional education.

IV. CONCLUSION

This study set out to examine how the integration of English for Specific Purposes into built environment curricula can foster inclusivity and enhance professional competence among students in Nigerian tertiary institutions. The findings clearly demonstrate that when language instruction is aligned with disciplinary communication needs, students experience significant improvements not only in vocabulary and writing skills but also in confidence, participation, and professional readiness. The SFG-based ESP intervention implemented in this study proved highly effective in helping students understand how language functions within their professional context. By focusing on the ideational, interpersonal, and textual functions of language, learners were able to interpret and produce technical discourse more accurately. The use of authentic materials such as site reports, design briefs, and regulatory texts enabled students to connect classroom learning with real-world professional tasks. The integration of technology through mobile learning, AI feedback tools, and digital platforms enriched the learning experience and provided flexible access to resources. This demonstrates that technology enhanced ESP can play a crucial role in modernizing language

education and making it more engaging and accessible. Ultimately, this study establishes that ESP integration into built environment curricula is not optional but essential. It addresses long-standing communication challenges, promotes inclusivity, enhances academic performance, and prepares students for the linguistic demands of professional practice in a globalized world. For Nigerian tertiary institutions to produce graduates, who are both technically competent and communicatively proficient, ESP must be institutionalized across professional faculties, supported by policy reforms, interdisciplinary collaboration, and sustained investment in inclusive and technology-driven pedagogy.

V. RECOMMENDATIONS

Nigerian tertiary institutions should formally integrate English for Specific Purposes (ESP) into the core curriculum of all built environment disciplines rather than treating it as a general studies elective. ESP courses should be credit-bearing, compulsory, and strategically placed at early and intermediate levels of study where students begin to encounter technical documentation, design communication, and professional reporting tasks.

Effective ESP implementation requires interdisciplinary collaboration. English language lecturers should work closely with architecture, building technology, surveying, and engineering lecturers to design course content based on authentic professional texts such as blueprints, feasibility reports, site inspection records, tender documents, and building regulations. This collaboration ensures that language instruction reflects real communicative practices within the discipline.

ESP teaching should prioritize task-based pedagogy that mirrors workplace communication. Activities such as writing site reports, presenting design proposals, interpreting building codes, role-playing client meetings, and group project documentation should become central classroom practices. These simulations prepare students for the communicative realities of their professions.

Institutions should incorporate inclusive ESP strategies like bilingual glossaries (e.g., English–Igbo), visual aids, annotated diagrams, peer collaboration, and multimodal materials. These strategies help students from rural and disadvantaged backgrounds overcome linguistic barriers and actively participate in learning.

Digital tools should be integrated into ESP teaching to enhance engagement and accessibility. Learning management systems, mobile vocabulary learning via WhatsApp, AI writing feedback tools, and virtual simulations for interpreting drawings and site scenarios should be adopted to modernize language learning and reflect contemporary professional practice.

National regulatory bodies such as the National Universities Commission (NUC) and National Board for Technical Education (NBTE) should include ESP benchmarks as part of accreditation requirements for built environment programs. This policy move would ensure nationwide adoption and sustainability.

Institutions must invest in ESP resource development, including discipline-specific textbooks, glossaries, digital libraries of professional documents, and access to technological tools that support ESP delivery.

Further research should be encouraged to explore ESP integration in other professional fields such as engineering, medical sciences, agriculture, and environmental sciences to build a national evidence base for ESP-driven curriculum reform.

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