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An Analytical Approach to Improving Engineering Students' Writing Skills Through ESP Writing Course

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ABSTRACT

Engineering students frequently encounter significant challenges in developing effective writing skills necessary for academic success and professional practice. Traditional general English courses often fail to address the specific linguistic and rhetorical demands of engineering disciplines such as report writing technical documentation project proposals and research articles. This study adopts an analytical approach to examine the effectiveness of an English for Specific Purposes (ESP) writing course designed specifically for undergraduate engineering students. The course integrated needs analysis genre pedagogy task-based instruction and corpus-informed materials to target discipline-specific writing conventions vocabulary and discourse structures.

A mixed-methods research design was employed involving quantitative assessment of writing samples before and after the intervention using established rubrics for coherence lexical accuracy grammatical complexity and genre appropriateness. Qualitative data were gathered through student questionnaires and semi-structured interviews to gauge perceptions of learning gains and course relevance. Results demonstrated statistically significant improvements across all measured writing components with notable gains in the use of technical terminology rhetorical organization and audience awareness. Participants exhibited enhanced ability to produce clear concise and professionally appropriate engineering texts after completing the 14-week ESP writing program. Genre analysis revealed better mastery of move structures in engineering reports and laboratory documentation.

The analytical approach highlighted the importance of aligning course content with authentic engineering communication tasks derived from real industry and academic contexts. Comparative analysis with control groups confirmed that the ESP intervention outperformed general English instruction in fostering transferable writing skills. These outcomes align with current trends in ESP research emphasizing the value of context-specific language training for non-native English speaking engineering students. Challenges identified include time constraints within crowded engineering curricula and varying levels of initial proficiency among learners.

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The findings underscore the potential of well-designed ESP writing courses to bridge the gap between engineering knowledge and effective communication skills. Implications extend to curriculum developers language instructors and engineering faculties advocating for greater integration of ESP programs in technical education. Future research should explore long-term retention of writing skills and the impact of digital tools within ESP frameworks. Overall this analytical study confirms that targeted ESP instruction significantly enhances engineering students writing proficiency preparing them for the communicative demands of their future careers.

Keywords: *ESP Writing, Engineering Students, Technical Writing Skills,English for Specific Purposes.*