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RESEARCH ON MEASURES TO IMPROVE WRITING SKILLS FOR ENGINEERING STUDENTS AT THE THAI NGUYEN UNIVERSITY OF TECHNOLOGY

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ABSTRACT

In the context of globalization and international integration, academic and professional writing skills have become essential requirements for engineering students. However, in reality, many engineering students encounter difficulties performing writing tasks such as reports, theses, or scientific papers. This study aims to assess the current state of students' writing skills at the Thai Nguyen University of Technology – Thai Nguyen University and to test several enhancement measures, including technology application, project-based writing, group writing, and peer feedback. The results indicate that these measures significantly improve students' writing competence while also fostering autonomy and practical application in their professional contexts.

Keywords: writing skills, engineering students, writing instruction, teaching methods, University of Technology.

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INTRODUCTION

In today's higher education context, writing skills are not only learning tools but also core competencies for professional practice (Hyland, 2019). For engineering students, mastering writing skills enables them to present technical reports, theses, and scientific articles logically and persuasively. However, studies show that engineering students in Vietnam and many other countries still face difficulties in vocabulary, grammar, and idea organization (Nguyen & Bui, 2021).

This topic was chosen based on the need to improve training quality, meet learning outcomes, and align with international standards. The research focuses on two main objectives: (1) to assess the current situation of engineering students' writing skills; and (2) to test and propose appropriate measures for improvement in the university's context.

RESEARCH QUESTIONS

· What challenges do engineering students face in academic and technical writing?

· Which measures can effectively enhance their writing skills?

THEORETICAL BASIS AND OVERVIEW OF THE RESEARCH

Writing is the ability to produce written discourse that demonstrates the organization of thought, language, and knowledge (Grabe & Kaplan, 2014). It is one of the essential skills students need to develop. Writing competence is vital in academic, business, and interpersonal communication within the global community (Weigle, 2002:1).

In academic contexts, this ability is used to evaluate students' writing proficiency through tasks such as essays or written assignments integrated into the curriculum. Various teaching approaches have been adopted: the *Product Approach* focuses on the final text; *Process Writing* emphasizes stages such as planning, drafting, and revising (Seow, 2002); and the *Genre-based Approach* values social context and text genre (Hyland, 2007).

Globally, many studies have shown that applying peer feedback, project-based writing, and digital technologies positively affects engineering students' writing development (Li, 2020; Hyland, 2019). In Vietnam, some preliminary research has identified challenges in teaching writing to engineering students, but there remains a lack of applied studies specific to technical education (Nguyen & Bui, 2021).

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RESEARCH METHODS

The study involved 200 second- to fourth-year engineering students at the Thai Nguyen University of Technology – Thai Nguyen University. Survey methods included self-assessment questionnaires on writing skills, pre-test and post-test writing tasks, and interviews with lecturers.

The research design comprised three stages:

(1) assessing the current situation;

(2) proposing interventions (group writing, peer feedback, project-based writing, and integration of online learning tools);

(3) implementing pedagogical experiments over one semester.

Data were analyzed quantitatively (pre- and post-test score comparisons) and qualitatively (content analysis of interviews).

RESULTS AND DISCUSSION

Table 1. Current Situation of Engineering Students' Writing Skills (N = 200)

Writing Skill Assessed	Good (%)	Average (%)	Weak (%)
Academic vocabulary	18	46	36
Grammar and sentence structure	22	41	37
Organization and idea development	30	45	25
Coherence and academic style	20	48	32
Writing technical reports/theses	25	44	31
Presentation, citation, and adherence to academic standards (APA)	15	40	45

Survey results reveal that the writing skills of engineering students at the Thai Nguyen University of Technology remain limited. The percentage of students rated "good" is relatively low (15–30%), mainly in organization and idea development (30%). Meanwhile, key skills such as academic vocabulary, grammar, and coherent expression show over 30% of students at a weak level. Notably, 45% of students have difficulty with presentation, citation, and adherence to academic standards (APA), indicating a lack of training in professional writing conventions.

Overall, engineering students demonstrate strengths in logic and idea organization—consistent with technical and scientific thinking—but lack flexibility in language expression and control of academic style. This limitation directly affects their ability to complete academic tasks such as theses, research reports, or scientific papers.

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The causes of these findings stem from both students and instructors. Students often lack motivation and awareness of the importance of writing skills, while curricula rarely emphasize intensive writing practice or tailored writing courses for engineering disciplines. This situation highlights the necessity of innovating writing pedagogy, especially through project-based practice and integration of technological tools.

Table 2. Improvement After Implementation of Measures

Evaluation Criteria	Before Intervention (%)	After Intervention (%)
Students achieving good or higher scores	32	68
Students knowing how to cite sources	25	60
Ability to write coherently and logically	30	65

DISCUSSION

The findings align with previous studies by Hyland (2019) and Li (2020), confirming the effectiveness of learner-centered teaching approaches in writing development. Teachers should guide students through a structured writing process, including planning, drafting, revising, and finalizing.

The significant contribution of this study lies in demonstrating the feasibility of integrating technology and collaborative learning in technical education in Vietnam.

However, the study is limited by its short intervention period (one semester) and sample size. Future research should expand the participant pool and extend the duration to yield more comprehensive results.

CONCLUSION AND RECOMMENDATIONS

The study identified the current situation of engineering students' writing skills at the Thai Nguyen University of Technology and confirmed the effectiveness of group writing, project-based writing, and technology integration.

RECOMMENDATIONS

· For instructors: Apply modern, process-oriented writing methods and emphasize formative feedback.

· For the university: Develop specialized courses in academic and technical writing.

· For students: Actively practice writing regularly, combining self-study with collaborative learning.

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