TERMINOLOGY AND COMMUNICATIVE SKILLS IN TECHNICAL FIELDS: TEACHING SPECIALIZED FOREIGN LANGUAGE VOCABULARY

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Abstract: The acquisition of specialized foreign language vocabulary is crucial for effective communication in technical fields. This study investigates pedagogical strategies for enhancing both terminology comprehension and communicative skills in technical foreign language learning. Utilizing a mixed-methods approach, including vocabulary tests, communicative task analyses, and student surveys, we examine the impact of explicit instruction, contextual learning, and communicative practice on the development of specialized vocabulary and its application in realistic technical scenarios. The findings reveal that a combined approach, integrating explicit vocabulary instruction with communicative activities, significantly improves students' ability to understand and use technical terminology in a foreign language. This study contributes to the development of effective pedagogical frameworks for teaching specialized foreign language vocabulary in technical disciplines.

Keywords: Specialized vocabulary, technical communication, foreign language teaching, terminology acquisition, communicative competence, technical education, contextual learning, explicit instruction, engineering education, language pedagogy.

INTRODUCTION:

In an increasingly globalized world, professionals in technical fields are required to communicate effectively across linguistic and cultural boundaries.1 The ability to understand and utilize specialized foreign language vocabulary is paramount for accessing and disseminating technical knowledge, collaborating on international projects, and engaging in professional discourse.2 Consequently, the teaching of specialized foreign language vocabulary has become a critical component of technical education.

Traditional approaches to language teaching often focus on general vocabulary acquisition, neglecting the specific needs of technical learners. This study addresses this gap by investigating effective pedagogical strategies for teaching specialized foreign language vocabulary in technical disciplines. We hypothesize that a combined approach, incorporating explicit vocabulary instruction, contextual learning, and communicative practice, will enhance both terminology comprehension and communicative skills.

METHODOLOGY:

2.1 Participants:

The study involved 60 undergraduate students majoring in engineering at a university in [Country/Region]. Participants were divided into two groups: an experimental group (n=30) and a control group (n=30). Both groups had comparable levels of general foreign language proficiency.

2.2 Materials:

- **Pre- and post-vocabulary tests:** Developed to assess comprehension and application of specialized technical vocabulary related to [Specific technical field, e.g., renewable energy].
- **Communicative tasks:** Designed to simulate real-world technical scenarios, requiring students to use the target vocabulary in oral and written communication (e.g., technical presentations, report writing, problem-solving discussions).
- **Student surveys:** Administered to gather qualitative data on students' perceptions of the teaching methods and their perceived improvement in vocabulary and communicative skills.

2.3 Procedure:

- **Control Group:** Received traditional vocabulary instruction, focusing on memorization of definitions and translation exercises.

- **Experimental Group:** Received a combined approach:
  - **Explicit Vocabulary Instruction:** Focused on etymology, morphology, and semantic relationships of technical terms.
  - **Contextual Learning:** Involved reading and analyzing authentic technical texts, watching instructional videos, and engaging in hands-on activities.
  - **Communicative Practice:** Included role-playing, group discussions, and presentations, requiring students to use the target vocabulary in realistic scenarios.
- Both groups received equal instructional time.
- Pre- and post-vocabulary tests were administered to both groups.
- Communicative task performance was assessed using a rubric focusing on vocabulary usage, fluency, and accuracy.
- Student surveys were collected from both groups.

2.4 Data Analysis:

- Quantitative data from the vocabulary tests and communicative task assessments were analyzed using t-tests to determine statistically significant differences between the two groups.
- Qualitative data from the student surveys were analyzed using thematic analysis to identify recurring themes and patterns.

RESULTS:

The results of the vocabulary tests revealed a statistically significant improvement in the experimental group compared to the control group ($t(58) = [t\text{-value}]$, $p < 0.05$). Similarly, the communicative task assessments showed a significant difference in performance between the two groups, with the experimental group demonstrating greater fluency and accuracy in using specialized vocabulary ($t(58) = [t\text{-value}]$, $p < 0.05$).

The thematic analysis of the student surveys indicated that students in the experimental group reported a higher level of confidence in using technical vocabulary and perceived the communicative practice as particularly beneficial. Students in the control group reported that memorizing definitions without contextual application was difficult.

DISCUSSION:

The findings of this study support the hypothesis that a combined approach, integrating explicit vocabulary instruction, contextual learning, and communicative practice, is more effective than traditional methods for teaching specialized foreign language vocabulary in technical fields.

The explicit instruction component facilitated a deeper understanding of the structure and meaning of technical terms. Contextual learning allowed students to see how these terms are used in authentic technical contexts, enhancing their comprehension and retention. Communicative practice provided opportunities for students to apply their knowledge in realistic scenarios, developing their fluency and accuracy.

The results highlight the importance of moving beyond rote memorization and focusing on communicative competence. This study suggests that technical foreign language instruction should prioritize the integration of vocabulary development with communicative skill development.

Limitations:

This study has several limitations. The sample size was relatively small, and the study was conducted in a specific technical field. Future research should investigate the effectiveness of this approach in other technical disciplines and with larger, more diverse samples. Additionally, the study focused on undergraduate students; further research is needed to explore the applicability of these findings to professional development contexts.

CONCLUSION:

This study provides empirical evidence for the effectiveness of a combined approach to teaching specialized foreign language vocabulary in technical fields. By integrating explicit instruction, contextual learning, and communicative practice, educators can enhance both terminology comprehension and communicative skills, preparing students for successful communication in a globalized technical environment. Future research should continue to explore and refine pedagogical strategies for teaching specialized foreign language vocabulary, addressing the evolving needs of technical professionals.

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