



ENGLISH AS A KEY COMPONENT OF EDUCATION IN TECHNICAL UNIVERSITIES

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Abstract– In modern era of globalization and world economic integration in many spheres of human activity, the question of the need to have a single language code for specialists in different professions has become of great importance. This need is especially acute in the field of engineering, since it is engineers who are primarily involved in scientific and technological progress and changes in technological structures. The current situation in teaching a foreign (English) language in technical universities helped us formulate the goal of this study, namely, to develop a holistic and continuous content of a foreign language training program for engineers, regardless of their nationality, that fully takes into account the specifics of engineering activity and develops strong foreign language communication skills in professionally oriented environment. In the final stages of foreign language learning within the ESP approach, students are introduced to the basics of English for technical purposes, its key technical terminology and some registers of technical sphere communication.

Key words– global workforce, cognitive abilities, English for specific purposes, predominant language, collaborative learning environments, communication skills, technical curricula.

I INTRODUCTION

In an era marked by globalization and rapid technological advancement, the significance of English as a medium of instruction and communication in technical universities has grown immensely. English is not merely a language; it serves as a bridge connecting students to a world of knowledge, professional opportunities, and international collaboration. This article delves into the integral role of English in technical education, examining its impact on students' learning experiences, employability, and the broader implications for the global workforce.

II MAIN PART

1. The Global Relevance of English in Technical Fields

1.1. The Dominance of English in Academia

English is the predominant language in academic publishing, especially in the fields of science, technology, engineering, and mathematics (STEM). A vast majority of influential research articles, journals, and conference proceedings are published in English. For students pursuing technical degrees, proficiency in English enables access to cutting-edge research, best practices, and new methodologies that are essential for their academic and professional development.

1.2. The Role of English in Industry

Technical industries are increasingly globalized, with companies operating across borders and employing a diverse workforce. English has emerged as the lingua franca in many organizations, facilitating communication among employees from various countries. Employers often prioritize candidates who possess strong English language skills, as these individuals are better equipped to engage in international collaborations, navigate technical documentation, and contribute to cross-cultural teams. Thus, integrating English into the curriculum of technical universities not only enhances students' academic learning but also significantly boosts their employability.

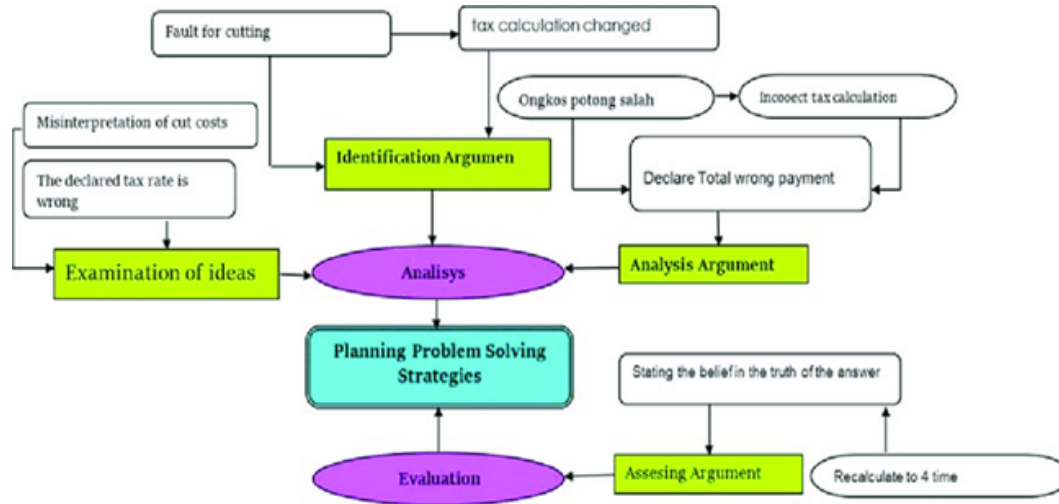
2. Educational Benefits of English Integration

2.1. Improved Communication Skills

Effective communication is a cornerstone of success in any technical field. By incorporating English language training into the technical curriculum, universities can help students develop critical communication skills necessary for their future careers. This includes technical writing, presentation skills, and the ability to engage in discussions and negotiations in English.

2.2. Enhanced Critical Thinking and Problem Solving

Learning a second language like English can enhance cognitive abilities, including critical thinking and problem-solving skills. As students learn to articulate complex ideas



and concepts in English, they engage in deeper analysis and reasoning. This cognitive engagement is particularly valuable in technical disciplines, where problem-solving is a daily requirement (Figure 1).

2.3. Exposure to Diverse Perspectives

English serves as a gateway to a plethora of knowledge and perspectives from around the world. Through English-language resources, students can engage with diverse viewpoints and approaches to problem-solving that enrich their understanding of their field. This exposure fosters a more inclusive and innovative learning environment, preparing students to think critically and creatively in their careers.

3. Strategies for Effective Integration of English

3.1. English for Specific Purposes (ESP)

One effective approach to integrating English into technical education is through English for Specific Purposes (ESP) programs. These courses focus on the language skills required in specific fields, such as engineering, information technology, or biotechnology. By tailoring English instruction to the needs of technical students, universities can ensure that learners acquire relevant vocabulary, communication skills, and cultural awareness essential for their professional success.

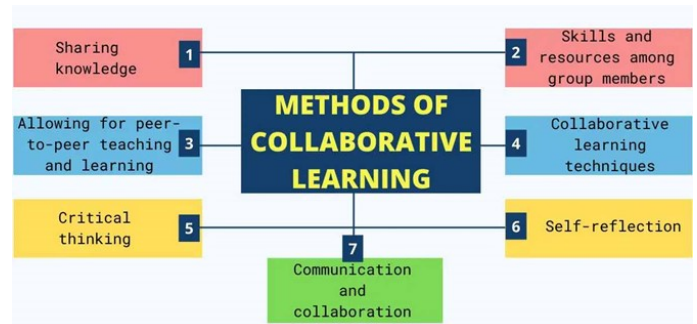
3.2. Bilingual Instruction and Resources

Offering bilingual instruction in technical courses can significantly benefit students. By allowing students to first learn complex concepts in their native language and then transitioning to English, educators can help reduce the cognitive load and anxiety often associated with learning in a second language. Additionally, providing resources such as bilingual textbooks and online materials can further

facilitate this transition.

3.3. Collaborative Learning Environments

Promoting collaborative learning environments where students work together on projects can enhance their English language skills. Group assignments that require presentations, reports, and discussions in English encourage students to practice their language skills in a real-world context. Collaborative projects also foster teamwork, an essential skill in the workplace (Figure 2).



3.4. Language Support Services

Technical universities should provide robust language support services, including workshops, tutoring, and writing centers focused on technical English. These resources can assist students in overcoming language barriers and refining their communication skills. By offering targeted support, universities can help students navigate the challenges of technical writing and presentation.

4. Challenges and Considerations

4.1. Diverse Language Proficiency Levels

| CALS domain | Skills measured |
|---|---|
| Unpacking dense information | The ability to comprehend and use complex words and sentences that contain concise information (e.g. nominalisations, embedded clauses, expanded noun phrases) |
| Connecting ideas logically | The ability to use 'connectives' common in academic texts (e.g. <i>consequently, on the one hand, etc.</i>) |
| Tracking participants and ideas | The ability to identify and produce the terms or phrases used to refer to the same participants or themes throughout a text (e.g. <i>Water evaporates at 100 degrees Celsius. This process ...</i>) |
| Organising analytic texts | The ability to organise analytic texts (including argumentative texts and paragraph-level structures) according to conventional academic text structures |
| Understanding metalinguistic vocabulary | The ability to understand precise meanings, particularly the use of language to make thinking as reasoning visible (e.g. <i>hypothesis, generalisation, argument</i>) |
| Understanding a writer's viewpoint | The ability to understand or use markers that signal a writer's viewpoint, especially markers that show a writer's degree of certainty in relation to a claim (e.g. <i>certainly; it is likely that</i>) |
| Recognising academic language | The ability to recognise academic language when compared with more colloquial language in communicative contexts where academic language use is expected. |

One of the primary challenges in integrating English into technical education is the diverse language proficiency levels among students. While some students may be fluent in English, others may struggle with basic communication. Educators must implement differentiated instruction strategies to address these varying levels and ensure that all students can benefit from English integration.

4.2. Balancing Technical and Language Skills

Another challenge is striking a balance between technical and language skills within the curriculum. Educators must ensure that the focus on English does not detract from the core technical competencies that students need to develop. A well-structured curriculum that intertwines technical training with English language instruction is essential for achieving this balance (Figure 3).

III CONCLUSION

As the landscape of education and the workforce continues to evolve, the role of English in technical universities has never been more crucial. By integrating English into technical curricula, universities not only enhance their students' academic experiences but also equip them with the skills necessary for success in a globalized world. Through innovative teaching strategies and robust language support,

technical universities can prepare their graduates to excel in their fields, fostering a generation of professionals who are not only technically proficient but also skilled communicators capable of navigating the complexities of the modern workforce. Embracing English as a core component of technical education is not merely an option; it is an imperative for future success.

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