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ANALYZING THE USE OF ENGLISH IN HYDROMELIORATION EDUCATION PROGRAMS

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Abstract: As the demand for international cooperation and access to global research grows, the role of English in hydromelioration education has become increasingly vital. This paper analyzes how English is currently used within educational programs in the field of hydromelioration, focusing on curriculum content, student proficiency, teaching resources, and pedagogical approaches. Drawing on case studies from institutions in non-native English-speaking countries and survey data from instructors and students, the study explores challenges and opportunities in integrating English for Specific Purposes (ESP) into technical education. Recommendations are made for improving instructional design and resource development in multilingual academic contexts.

Keywords: English for Specific Purposes (ESP), Hydromelioration Education, English Medium Instruction (EMI), Curriculum Development, Language Proficiency, Technical English, Water Resources Management, Agricultural Engineering, Central Asia, Higher Education.

Introduction

Hydromelioration education is a multidisciplinary endeavor encompassing irrigation, drainage, soil science, hydraulics, and water resource management. As this field expands to meet global challenges—such as climate change, food security, and sustainable development—so too does its linguistic scope. English has emerged as the dominant language of science and technology, including in hydromelioration research, project documentation, and higher education. Universities and technical institutes, particularly in non-Anglophone countries, are increasingly incorporating English-

medium instruction (EMI) into their hydromelioration programs. Students must now engage with English-language textbooks, academic articles, and international standards. However, this transition is not without obstacles. Learners often struggle with specialized terminology, instructors may lack training in ESP teaching, and suitable educational materials may be limited.

This study seeks to analyze how English is used in hydromelioration education programs, assess current practices and challenges, and propose strategies for more effective integration of English into technical instruction.

Methods

This study employed a mixed-methods research design, combining both quantitative and qualitative approaches to gain a comprehensive understanding of how English is integrated into hydromelioration education programs. The methodology consisted of three main components: curriculum analysis, survey distribution, and in-depth interviews.

Curriculum Analysis

A document-based review was conducted of undergraduate and postgraduate hydromelioration curricula from five universities across Central Asia and Eastern Europe, including TIAME (Tashkent Institute of Irrigation and Agricultural Mechanization Engineers). These institutions were selected based on their specialization in water and agricultural engineering and their participation in international collaborations.

The focus of the analysis included:

The number and type of courses delivered in English or incorporating English-language materials;

The presence of English for Specific Purposes (ESP) courses tailored to technical vocabulary;

The integration of English reading, writing, speaking, and listening skills into subject-based modules;

Assessment practices involving English (e.g., English-language exams, reports, presentations).

This allowed us to evaluate the degree to which English is embedded in core and elective courses and the extent of bilingual or EMI (English Medium Instruction) implementation.

Survey Design and Distribution

A structured survey was administered to a sample of 80 undergraduate and graduate students and 20 faculty members from the same institutions. The survey consisted of both closed-ended (Likert-scale and multiple-choice) and open-ended questions, designed to gather data on:

Students' self-assessed English proficiency in reading, writing, listening, and speaking;

Frequency of English use in coursework and assignments;

Difficulties encountered when using English in technical subjects;

Availability and usefulness of English-language learning resources;

Faculty members' experience in teaching through English and their use of English texts.

Findings

The results indicate that English plays a substantial but varied role across hydromelioration education programs. The use of English tends to fall into four key categories:

Academic Reading:

All surveyed programs required students to read English-language journal articles and international standards (e.g., FAO manuals, ISO guidelines). Students reported

moderate to high difficulty understanding scientific vocabulary, especially compound terms such as irrigation scheduling, soil water retention, and evapotranspiration loss.

Instruction and Assessment:

English-medium instruction was found in around 30% of master's courses but rarely at the bachelor's level. Some instructors use bilingual slides or teach in English while translating key terms into the native language. Assessment in English is limited to research projects and final-year theses

Communication Skills:

Most students felt confident reading and translating technical texts but expressed low confidence in speaking or writing in English. Oral presentation skills and academic writing instruction were reported as underdeveloped in most curricula.

Teaching Resources:

A lack of tailored ESP materials for hydromelioration was a common concern. Instructors often adapted general engineering English books, which did not reflect the field's specific terminology. Only a few institutions had access to corpus-based resources or bilingual glossaries.

Discussion

These findings highlight a mismatch between the linguistic demands of globalized hydromelioration education and the current capacity of local programs to meet those demands. While the integration of English is increasing, it remains uneven and under-resourced.

Several key challenges were identified:

Limited ESP expertise: Most instructors are hydromelioration specialists, not language teachers, and lack training in ESP pedagogy.

Curriculum gaps: English is often taught separately from technical subjects, leading to fragmented learning experiences.

Terminology overload: Students are exposed to dense technical vocabulary without sufficient scaffolding or contextual explanation.

Nonetheless, there are promising opportunities:

Corpus-based learning: Building or using specialized corpora can help instructors and students identify common terms and usage patterns.

Collaborative instruction: Team teaching involving both language and content experts can enhance learning outcomes.

Digital tools: Online glossaries, concordancers, and terminology platforms offer scalable support for self-study and classroom use.

Conclusion

The findings of this study clearly indicate that English plays a crucial yet uneven and underdeveloped role in hydromelioration education programs, particularly in non-native English-speaking regions such as Central Asia and Eastern Europe. Despite the increasing presence of English-language materials in curricula and the growing necessity for students to engage with international research, many challenges persist that limit the effectiveness of English integration.

First, students are frequently exposed to complex and highly specialized terminology without sufficient preparatory instruction or contextual support. This leads to surface-level understanding, which hinders their ability to engage critically with academic texts and apply technical language in practical settings such as presentations, reports, or international collaborations. The lack of tailored ESP (English for Specific Purposes) resources in the field of hydromelioration compounds this issue, leaving both students and instructors to rely on general-purpose materials that often lack field-specific relevance.

Second, instructors often face difficulties in delivering content through English due to limited training in EMI (English Medium Instruction) strategies. In many cases,

bilingual instruction is implemented ad hoc, with educators switching between English and their native language without a structured pedagogical framework. This compromises the depth of language learning and reduces students' immersion in technical English discourse.

Third, while some institutions, such as TIAME, have made significant efforts to include English components in their hydromelioration programs, these initiatives often remain isolated rather than systematically embedded into curricula. Language instruction tends to be compartmentalized rather than integrated into the teaching of core technical subjects.

Technology Integration: Leveraging digital tools such as terminology databases, concordancers, and hydromelioration-specific corpora can facilitate independent vocabulary acquisition and reading comprehension.

Overall, while the incorporation of English into hydromelioration education is an essential step toward internationalization, it requires coordinated and sustained efforts at the institutional, curricular, and pedagogical levels. Only through strategic planning and investment in language-sensitive instruction can educational institutions truly prepare students to operate effectively in global professional and academic environments.

Future research could explore the long-term impacts of English-medium instruction on students' career trajectories, as well as the development of multilingual hydromelioration resources that support both local and international learning outcomes. Additionally, comparative studies across regions and institutions could offer further insight into best practices and scalable models of bilingual education in technical disciplines.

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INTEGRATION OF CONTEMPORARY TECHNOLOGIES INTO LANGUAGE EDUCATION FOR NON-LANGUAGE MAJORS

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