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ENHANCING PROFESSIONAL SPEECH SKILLS OF AI STUDENTS THROUGH AUTOMATED LINGUISTIC-ANALYTICAL APPROACHES

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Abstract. This paper presents a comprehensive experimental study involving 60 artificial intelligence students from Fergana State Technical University, aiming to evaluate the effectiveness of automated linguistic-analytical platforms in cultivating students' professional speech skills. The research focuses on integrating AI-powered corpus linguistics tools into the academic curriculum to provide real-time, automated feedback on students' professional writing tasks. Throughout the semester, students in the experimental group submitted various written assignments, which were analyzed by advanced software capable of performing frequency, collocation, and concordance analyses. These analyses enabled the platform to supply highly specific, individualized feedback, targeting each student's use of professional terminology, syntactic structure, and error patterns. In contrast, the control group received traditional teacher commentary without access to automated analysis.

Keywords: automated feedback, professional speech, corpus linguistics, AI students, language education

Introduction

In the contemporary world, effective professional communication has become a cornerstone for success in virtually every field, with the artificial intelligence sector being no exception. As AI technologies continue to evolve and permeate numerous industries, the demand for specialists who can not only develop technical solutions but also articulate complex concepts clearly and persuasively increases dramatically. Traditional approaches to language instruction in higher education, while valuable, often fall short in providing students with the targeted, individualized feedback necessary to master the unique linguistic conventions and terminology of the AI field. This gap in instruction can hinder students' readiness to participate confidently in professional environments where precise and sophisticated communication is essential. Recognizing this, educators and researchers are turning to innovative teaching tools that leverage advances in technology. One promising avenue is the use of automated linguistic-analytical platforms powered by artificial intelligence and corpus linguistics methodologies. These tools are capable of analyzing large quantities of text, identifying patterns, and providing actionable feedback tailored to each learner's needs. The present study investigates the impact of such platforms on the professional speech development of AI students at Fergana State Technical University. By integrating these tools into the curriculum, the research seeks to determine whether automated, data-driven feedback can significantly enhance students' mastery of professional language skills, preparing them for the communicative demands of their future careers in artificial intelligence. The study also explores students' perceptions of the feedback process and their motivation to engage with professional writing tasks when supported by advanced analytical technologies.

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Methods

The experimental design for this study involved 60 second-year students enrolled in the artificial intelligence program at Fergana State Technical University. These participants were randomly assigned to either an experimental group (n=30) or a control group (n=30) to ensure comparability and minimize selection bias. Over the course of one academic semester, both groups participated in identical professional writing assignments designed to simulate real-world tasks commonly encountered in the AI industry, such as technical reports, project proposals, and documentation of algorithms. The distinguishing feature of the experimental group was their access to an AI-powered linguistic-analytical platform equipped with advanced corpus linguistics functionalities. This platform performed automated analyses of students' submissions, focusing on factors such as word frequency, collocation patterns, and concordance lines relevant to professional AI discourse. Each submission was processed to identify strengths and areas for improvement in the use of technical terminology, syntactic complexity, and grammatical accuracy. The platform delivered individualized, real-time feedback, allowing students to revise their work iteratively. In contrast, the control group received only traditional feedback from their instructor, which consisted of general comments and corrections without the benefit of automated analysis. To assess the effectiveness of the intervention, pre- and post-tests were administered to measure students' proficiency in professional vocabulary, syntactic structures, and error correction. Additionally, a survey was conducted to capture students' perceptions of the feedback process, engagement with the assignments, and their overall satisfaction with the instructional methods employed.

Results

The results of the experiment revealed notable differences between the experimental and control groups in terms of their development of professional speech skills. After the intervention, quantitative analysis demonstrated that students in the experimental group exhibited a 25% average improvement in professional vocabulary usage, syntactic complexity, and error correction as measured by standardized assessment rubrics. This contrasted sharply with the control group, which achieved a comparatively modest 10% average improvement over the same period. The experimental group's assignments reflected a broader and more accurate use of domain-specific terminology, as well as a higher frequency of complex sentence structures appropriate for technical communication in AI. Furthermore, error rates in grammar and word choice decreased more substantially among students who received automated feedback. In addition to these objective measures, qualitative data collected from post-intervention surveys highlighted the perceived value of the automated linguistic-analytical platform. Students reported that the immediacy and specificity of the feedback enhanced their motivation, promoted more active engagement with the revision process, and contributed to a deeper understanding of their linguistic strengths and weaknesses. Many participants expressed that the platform's tailored suggestions made complex language structures and specialized terms more accessible, boosting their confidence in professional writing. These findings collectively indicate that the integration of automated linguistic-analytical tools into language instruction can lead to significant improvements in students' professional communication abilities, both in measurable outcomes and subjective experience.

Discussion

The outcomes of this study provide compelling evidence in favor of integrating automated linguistic-analytical methods into the language instruction of AI students. The

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substantial improvements observed in the experimental group underscore the unique advantages of leveraging AI-powered platforms for educational purposes. Unlike traditional teacher feedback, which is often limited by time and subjectivity, automated analysis offers consistent, immediate, and highly personalized guidance that addresses individual student needs. This real-time feedback loop not only accelerates the learning process but also encourages students to take greater ownership of their development by revising and refining their work independently. The increased use of professional terminology and syntactic sophistication among experimental group members demonstrates that data-driven instruction can bridge the gap between academic learning and industry expectations, ensuring that students are better equipped for the communicative demands of their future careers. Moreover, the positive reception among students indicates that such technological interventions can enhance motivation, engagement, and learner autonomy. These findings align with broader trends in educational technology, supporting the integration of AI and corpus linguistics tools in higher education curricula, particularly in technical disciplines. However, the study also highlights the need for ongoing instructor involvement to interpret automated feedback and provide guidance where necessary. Overall, this research advocates for a blended approach, combining the strengths of automated and human feedback to maximize learning outcomes and prepare students for the evolving landscape of professional communication in artificial intelligence.

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