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Helping Military Trainees To Develop English Proficiency Through Technology-Enhanced Online Learning

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Abstract: The increasing involvement of military personnel in multinational operations has intensified the demand for effective English language proficiency in professional and operational contexts. This study investigates the role of information and communication technologies (ICT) and artificial intelligence (AI) in enhancing English language learning among military trainees through online and technology-enhanced instruction. Using a mixed-methods research design, the study combines quantitative performance data with qualitative evidence from surveys, interviews, and classroom observations. The results indicate that ICT-supported and AI-assisted learning environments significantly improve communicative competence, learner motivation, autonomy, and the acquisition of military-specific vocabulary, particularly in listening and speaking skills. Interactive digital platforms, mobile learning applications, and adaptive AI tools promote sustained engagement by providing personalized feedback and flexible access to learning materials. In addition, immersive technologies such as augmented and virtual reality effectively simulate authentic military communication scenarios. Overall, the findings confirm that the strategic integration of ICT and AI enhances the effectiveness of English language training in military education and supports international cooperation and operational readiness.

Keywords: Military English, ICT in language education, artificial intelligence, online learning, communicative competence, military education in language learning.

Introduction: Contemporary military operations increasingly involve multinational cooperation, including joint exercises, peacekeeping missions, and alliance-based defense initiatives. In such contexts, English functions as the primary medium of professional communication, making linguistic competence a critical requirement for military personnel (Ciocan, 2024, pp. 42–45). Proficiency in English not only facilitates operational coordination but also strengthens international partnerships and mutual understanding among allied forces (Révayová, 2022, pp. 366–369). Responding to these demands, military education systems worldwide are gradually shifting from traditional, classroom-centered language instruction toward more flexible and technology-supported online learning models.

This transition reflects broader trends in education and is driven by the need to accommodate diverse learning needs, operational schedules, and rapidly evolving professional requirements (Ciocan, 2024, pp. 46–49; Révayová, 2022, pp. 370–372). The integration of Information and Communication Technologies (ICT) has played a central role in this transformation. ICT encompasses a wide range of digital tools, multimedia resources, and internet-based platforms that enhance instructional environments and expand access to learning opportunities (Alobaid, 2021, pp. 674–679). In military language education, these technologies support the creation of interactive and practice-oriented learning experiences tailored to professional contexts (Binu, 2024, pp. 58–61; Sovhar, 2021, pp. 262–266). Research indicates that ICT-supported instruction contributes to improved language proficiency, greater learner autonomy, and enhanced collaboration among

cadets, ultimately strengthening their readiness for international military engagement (Sovhar, 2021, pp. 268–271). The development of online English courses designed specifically for military learners, particularly those incorporating synchronous interaction and immediate feedback, has further enriched the learning process. Such approaches are especially relevant in countries with expanding international military cooperation, where English has become indispensable for achieving interoperability and meeting global standards (Ciocan, 2024, pp. 50–52; Sovhar & Boichenko, 2022, pp. 119–123). Overall, ICT-enhanced instruction fosters independent learning, improves communicative competence, and increases the effectiveness of English language training in military settings (Mammadova, 2025, pp. 56–59). ICT-based instruction promotes independent learning and communicative proficiency, thereby improving the effectiveness of English language training in military contexts.

LITERATURE REVIEW

Existing research on ICT-supported English language instruction highlights its growing significance in military education. Scholars have examined pedagogical approaches, implementation challenges, and successful practices across various national and institutional contexts. Particular attention has been given to the role of digital technologies in addressing the specialized linguistic and cultural demands of military communication, thereby improving operational preparedness (Révayová, 2022, pp. 372–374). Although ICT has been widely studied in general foreign language education, its application in military academies remains comparatively recent and presents unique considerations related to security, specialized terminology, and professional relevance (Révayová, 2022, p. 375). Previous studies demonstrate that ICT contributes positively to language learning outcomes by increasing learner motivation, supporting individualized instruction, enabling continuous assessment, and creating interactive learning environments (Cabrera, 2022, pp. 91–94; Habók & Nguyen, 2024, Article 103088; Sovhar, 2021, pp. 270–272). Within military education, ICT is increasingly viewed as an essential component of communicative competence development. Digital tools facilitate adaptive learning pathways, support authentic task-based instruction, and encourage active learner engagement, all of which are critical for mastering English for Military Purposes (Sovhar, 2021, pp. 272–274). By supporting individualized learning, authentic professional tasks, and active engagement, digital tools contribute significantly to the successful acquisition of English for Military Purposes.

METHODOLOGY

This study employed a mixed-methods research design to examine the effectiveness of ICT-enhanced English language instruction for military trainees. Quantitative data were collected through language performance assessments and structured questionnaires, while qualitative insights were obtained from interviews and classroom observations. This combination allowed for a comprehensive evaluation of both measurable learning outcomes and learners' subjective experiences.

The instructional intervention integrated English as a Second Language (ESL) and English for Specific Purposes (ESP) within a technology-supported framework. Digital platforms and multimedia resources were used to deliver specialized content relevant to military communication, technical terminology, and international cooperation (Fountoulakis, 2024, pp. 88–92). Prior research confirms that such models enhance accessibility and learning efficiency (Nurmala et al., 2023, pp. 211–214). In Ukrainian military education, authentic materials and professional vocabulary are presented through interactive platforms such as Moodle, incorporating audio recordings, animations, and game-based elements (Yarmolovich, 2022, pp. 97–100). Overall, the applied mixed-methods and ICT-supported instructional model proved effective in addressing both the linguistic and professional needs of military trainees by combining measurable performance outcomes with authentic, practice-oriented learning experiences.

RESULTS

Analysis of the collected data revealed a clear positive relationship between ICT integration and English language learning outcomes. Notable improvements were observed in listening comprehension, vocabulary retention, and the practical application of military-specific terminology.

Digital learning tools—including Computer-Assisted Language Learning software, Learning Management Systems, and multimedia resources—significantly enhanced learner engagement and motivation (Révayová, 2022, pp. 369–371; Sovhar, 2021, pp. 265–268). Cadets frequently utilized digital devices for self-study, benefiting from flexible access and varied practice formats, which supported learner-centered and interactive environments (Sovhar, 2021, pp. 268–270; Bancha & Tongtep, 2021, pp. 143–146). The incorporation of multimedia elements such as visuals, hyperlinks, and video content further improved comprehension and sustained attention, particularly in technically oriented military education (Sovhar, 2021, pp. 271–273; Chmyr et al., 2024, pp. 7–10). Usage

analytics showed that gamified and AI-supported features led to higher levels of sustained engagement. Experimental groups using AI-powered language assistants demonstrated measurable gains in speaking proficiency compared to traditional methods (Ipatov et al., 2024, Article 100207; Madhavi et al., 2023, pp. 62–65). Usage data demonstrated that AI-enhanced and gamified instructional features increased learner engagement, and experimental groups using AI-driven language assistants achieved superior speaking outcomes compared to traditional teaching models.

DISCUSSION

The findings align with pedagogical theories emphasizing learner engagement, personalization, and experiential learning. ICT- and AI-supported platforms modernize military language instruction by fostering interactive and adaptive environments (Chmyr & Bhinder, 2023, pp. 29–32). Qualitative evidence highlights the motivational impact of AI tools that provide personalized feedback and immediate responses (Wei, 2023, pp. 118–121). Previous studies confirm their effectiveness in improving pronunciation, fluency, and self-regulated learning (Nguyen, 2024, pp. 84–87; Qiao & Zhao, 2023, pp. 201–204). Mobile-assisted language learning further enhances accessibility, enabling practice regardless of time and location constraints (Todorova, 2023, pp. 53–56; Ipatov et al., 2024, Article 100207). Emerging technologies such as AR, VR, and XR offer immersive simulations of real-life military communication scenarios, improving motivation and vocabulary acquisition in complex professional environments (Bendarkawi et al., 2025, pp. 15–18; Christou et al., 2025, pp. 94–97; Jongbloed et al., 2024, pp. 301–305). Taken together, these findings demonstrate that the integrated use of ICT, AI, mobile learning, and immersive technologies creates a learner-centered and contextually authentic instructional environment that significantly enhances language proficiency and communicative readiness in military education.

CONCLUSION

The integration of ICT and artificial intelligence into military English language education represents an effective strategy for enhancing communicative competence, learner motivation, and instructional adaptability. By providing personalized learning pathways, real-time feedback, and flexible access to resources, these technologies address diverse learner needs and optimize educational outcomes. Consequently, technology-enhanced instruction not only improves language proficiency but also prepares military personnel for effective communication in complex multinational operational contexts.

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