DEVELOPING PROFESSIONAL LANGUAGE COMPETENCE IN AVIATION SPECIALISTS

РОЗВИТОК ПРОФЕСІЙНОЇ МОВНОЇ КОМПЕТЕНЦІЇ У ФАХІВЦІВ АВІАЦІЙНОЇ ГАЛУЗІ

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The processes of globalization that modern society is undergoing continuously impose new demands on specialists in all fields, creating a need for professionals with new knowledge and competencies. Global shifts in economic, political, cultural, scientific, and other international relations have led to a significant increase in international contacts and exchanges, highlighting the urgent need for a common language of communication to overcome linguistic and cultural barriers that divide humanity. In the aviation industry, in particular, such language training aims to develop the skills necessary for communication in various contexts of aviation operations. One of the fundamental conditions for the successful functioning and development of this industry is flight safety.

The article highlights the critical role of English proficiency in aviation, particularly for pilots and air traffic controllers, where effective communication is essential for flight safety. It discusses how international standards, particularly those set by ICAO, have shaped language training in aviation universities. Despite the development of standardized radiotelephony phraseology, challenges persist, especially in non-standard situations requiring conversational English skills. Research suggests that many aviation professionals view phraseology as a coded system rather than a language, which can lead to dangerous miscommunications in emergencies. The article emphasizes that aviation English training should focus on comprehensive language competence, including listening comprehension, pronunciation, grammar, vocabulary, and fluency, ensuring operational reliability in real-world scenarios. Inadequate English skills have been linked to a significant number of aviation incidents, reinforcing the need for rigorous training, testing, and certification. Ultimately, the study underscores that aviation English is not just a technical requirement but a vital tool for safe and effective air traffic management. The authors highlight key areas for further research by addressing which aviation English language training programs can be improved, ultimately enhancing communication efficiency and overall flight safety.

Key words: *aviation English, flight safety, radio communication, ICAO proficiency levels, language barrier, listening comprehension, standard phraseology.*

Процеси глобалізації, які переживає сучасне суспільство, постійно висувають нові вимоги до фахівців у всіх галузях, створюючи потребу в професіоналах з новими знаннями та компетенціями. Глобальні зрушення в економічних, політичних, культурних, наукових та інших міжнародних відносинах призвели до значного збільшення міжнародних контактів та обмінів, підкресливши нагальну потребу у спільній мові спілкування для подолання мовних та культурних бар'єрів, які розділяють людство. В авіаційній галузі, зокрема, така мовна підготовка спрямована на розвиток навичок, необхідних для спілкування в різних контекстах авіаційних операцій. Однією з фундаментальних умов успішного функціонування та розвитку цієї галузі є безпека польотів.

У статті підкреслюється важлива роль володіння англійською мовою в авіації, особливо для пілотів та авіадиспетчерів, де ефективна комунікація є запорукою безпеки польотів. У ній обговорюється, як міжнародні стандарти, зокрема, встановлені ІКАО, вплинули на мовну підготовку в авіаційних університетах. Незважаючи на розвиток стандартизованої фразеології радіотелефонії, проблеми залишаються, особливо в нестандартних ситуаціях, що вимагають розмовних навичок англійської мови. Дослідження показують, що багато авіаційних фахівців розглядають фразеологію як кодову систему, а не мову, що може призвести до небезпечних непорозумінь у надзвичайних ситуаціях. У статті підкреслюється, що навчання авіаційної англійської мови повинно зосереджуватися на комплексній мовній компетенції, включаючи розуміння на слух, вимову, граматику, словниковий запас і вільне володіння мовою, що забезпечує надійність роботи в реальних умовах. Недостатній рівень володіння англійською мовою був пов'язаний зі значною кількістю авіаційних інцидентів, що посилює потребу в ретельній підготовці, тестуванні та сертифікації. Зрештою, дослідження підкреслює, що авіаційна англійська - це не просто технічна вимога, а життєво важливий інструмент для безпечного та ефективного управління повітряним рухом.

Автори виділяють ключові напрямки для подальших досліджень, розглядаючи, які програми навчання авіаційної англійської мови можна вдосконалити, що в кінцевому підсумку підвищить ефективність комунікації та загальну безпеку польотів.

Ключові слова: *авіаційна англійська, безпека польотів, радіозв'язок, рівні володіння ІКАО, мовний бар'єр, сприйняття на слух, стандартна фразеологія.*

General statement. The globalization processes that modern society is experiencing continuously put forward new requirements for specialists in all fields, creating a demand for professionals with new knowledge and competencies. A significant increase in international contacts and international exchanges has created an urgent need for a common language of communication to overcome the language and cultural barriers that divide humanity. In the aviation industry, contemporary language training aims to equip specialists with the skills necessary to communicate effectively in various aviation contexts.

Since flight safety is a fundamental condition for the successful operation and development of this industry, the important role of language in preventing aviation accidents and incidents has been widely discussed

by experts. Data obtained from the ICAO Accident/ Incident Data Reporting (ADREP) database, US National Safety Board (ASRS) reports, the UK's Mandatory Occurrence Reporting System (MORS), the Confidential Human Incident Reporting Programme (CHIRP) and Eurocontrol reports, confirm that the role of language in aviation accidents and incidents is significant. A number of fatal and non-fatal accidents appear in ICAO's ADREP in which 'language barrier' is mentioned as a factor [1, p. 1-2]. The main difference between teaching English to future air traffic controllers and teaching students of other specialities is that English is not only the language of their professional communication, but also the only means of carrying out their professional activities. International requirements for the level of English proficiency have significantly influenced the educational process in aviation higher education institutions, where special attention is given to the development of new methods and technologies effective for teaching English. The issue of language training for civil aviation specialists has always required the attention of researchers and methodologists. The ability to speak and understand English fluently is no less important a criterion of professional competence for aviation pilots and air traffic controllers than a perfect knowledge of radio communication language.

Analysis of the latest research and publications. The issue of language training for pilots and air traffic controllers in civil aviation has always been at the center of scientific and methodological attention. To date, a considerable amount of experience in methodological developments and teaching methods for English in the field of civil aviation has been accumulated. A significant number of scientific studies in this area are conducted by both domestic and foreign scholars. Among the authors addressing these issues, a number of Western specialists can be highlighted: S. Aplinger, M. Long, F. Robertson, S. Sarmento, R. Donato, S. Breul, A. Wang, A. Kukovets, A. Roberts, and G. Emery. The works of the aforementioned authors describe the main features of verbal communication in the air traffic control system, examine the mechanisms of speech interaction, the process of forming and developing language competence, determine the main directions for teaching English to flight crews, and outline the main problems in language training for aviation personnel. The works of Ukrainian scholars I. Fainman, Ye. Kmita, V. Piven', T. Tarnavska, and other authors are devoted to training pilots for radio communication. For example, I. Fainman reveals the essence of preparing future air traffic controllers for radio communication as a part of their general professional training. However, these studies do not address the problems of air traffic management in situations for which standard phraseology for communication is not provided. In the scientific research of Ye. Kmita, the influence of air traffic controllers' foreign language competence on flight safety is discussed. An analysis of this competence, its elements, the specifics of controllers' professional activities, and ICAO requirements for the 4th level of working language proficiency for aviation specialists is conducted [2, p. 116]. V. Piven' examines the preparation of pilots for radio communication on international air routes, but also does not address the issues of air traffic management in situations where standard radio communication phraseology is not provided [3]. S. Shcherbyna has developed a methodology for analyzing aviation accidents as part of future air traffic controllers' research work, but the scholar's study does not cover the problems of training in air traffic management in extreme situations as a pedagogical process [4]. T. Tarnavska has researched the preparation for conducting radio communication in the context of foreign communicative competence of aviation specialists [4], while some other researchers consider the problem of language competence as an underlying factor of flight safety culture [5].

Previously unresolved parts of the general problem. Most often, civil aviation specialists communicate and understand each other quite professionally within the boundaries of memorized phrases, which, however, does not guarantee fluency in the English language. Most aviation personnel perceive radio communication phraseology as a coded language, paying no attention to the meaning of the words used. This approach works only in standard conditions, but in the case of emergency situations, effective communication usually becomes dangerous, as lacking conversational language skills, the specialist will be helpless in any emergency situation.

The aim of the article is to examine the specific goals of English proficiency in the aviation sector, the criteria for assessing English language proficiency, the features of aviation English for radio communication, and its impact on flight safety.

The main idea. Professionally oriented language training for future specialists in an aviation university is characterized by specific goals, criteria for assessing language competence, the content of training, as well as the peculiarities of aviation English, which is essential for Pilot-Controller radiotelephony communications. This significantly distinguishes it from language training in any other non-linguistic higher education institution.

It should be noted that in an aviation university, the goal of language training, in accordance with the requirements of the International Civil Aviation Organization (ICAO), is to ensure a sufficiently high level of professional language competence among pilots and air traffic controllers in order to minimize the number of cases of inadequate communication on the airwaves. Unlike informal conversations or intellectual discussions on professional topics, any inaccuracy in radiotelephony communications between the flight

crew and air traffic control poses an evident risk to the lives of passengers and crew members. Any communication failure can lead to severe consequences, such as setting an incorrect course or executing an unauthorized maneuver, ultimately resulting in route deviation, entry into restricted or military zones, dangerous proximity of aircraft, collisions, or even aviation disasters.

The main challenge faced by those learning a foreign language, particularly civil aviation pilots for whom effective English proficiency is an integral part of their professional activities, lies in the perception and reproduction of foreign speech, a phenomenon known as the "language barrier."

The greatest challenge for air traffic control on international air routes faced by controllers in non-English-speaking countries, including Ukraine, is their inability to apply the knowledge, skills, and competencies acquired for standard operating conditions in extreme situations [5], [6, p. 281-282].

Thus, the task of aviation universities and aviation training centers is to prepare their graduates to manage and control risk factors at technical, psychological, and linguistic levels. At the new stage of aviation development, high, specific requirements for the level of language training based on mandatory testing and certification have become a necessary condition for ensuring flight safety.

Despite the fact that ICAO has developed a specialized language for radiotelephony communication, situations still arise where controllers and pilots make mistakes in its use. Most often, incorrectly interpreted the content of heard phrases – caused by radio frequency interference, the speaker's dialect, speech rate, or careless use of standard expressions – leads to situations that threaten flight safety. In extreme flight conditions, radiotelephony communication adds to the complexity of direct aircraft control, increases stress levels, and poses risks of negative consequences.

Over the past 15-20 years, language barriers have been a contributing factor in several aviation incidents and accidents. According to an ICAO review of 28,000 incident/accident reports, communication issues were a factor in over 70% of occurrences, with language proficiency being a significant risk to safety [7]. Additionally, research from the ICAO database identified 81 commercial aviation accidents and 14,555 incidents with communication breakdowns, many of which were linked to English language proficiency [8]. These figures underscore the critical role of language in aviation safety. The ICAO has since implemented stricter English language proficiency requirements to mitigate risks related to insufficient reliability in English language knowledge, skills, and competencies [9], [7].

During their studies, future aviation specialists take courses such as plain English, professionally oriented English (aviation English), and phraseology of radiotelephony communication in English. Mastering all three aspects is crucial for the successful execution of professional tasks.

The work of an air traffic controller is directly related to the ability to perceive information aurally, interpret it, and respond appropriately. The term "listening comprehension" has been introduced relatively recently in teaching methodology and is contrasted with "listening." While "listening" refers to the acoustic perception of sound sequences, "listening comprehension" encompasses the process of perceiving and understanding spoken language.

Listening comprehension is an active type of speech activity that involves intensive engagement of all mental and cognitive processes. For both controllers and pilots, English is often a foreign language, meaning it is influenced by the intonation and pronunciation of certain sounds present in their native language. The components of intonation include physical properties of speech, such as frequency and pitch of the fundamental tone, speech energy, volume, timbre, stress, duration, pauses, rhythm, and speech rate. In addition to these properties, spoken language is characterized by individual voice features, timbres, articulation clarity, expressiveness, and sound pronunciation quality [10, p. 69].

The use of English in radiotelephony communication is regulated by the Standards and Recommended Practices (SARPs) and the Procedures for Air Navigation Services (PANS), which are contained in Annex 10 "Aeronautical Telecommunications" and PANS-ATM. Specific English language proficiency requirements are outlined in Annex 1 "Personnel Licensing." Additionally, ICAO phraseology is published in Volume II "Rules of the Air and Procedures for Air Navigation Services" [11, p. 3-1].

The most difficult in the process of language training for students of specialized specialties – pilots and air controllers – is mastering speaking and comprehension skills, which are essential for ensuring flight safety without visual communication. The application of new methods and computer technologies, such as linguistic simulators, enables the effective optimization of the learning process, fosters professional orientation, and introduces students to situations as closely as possible to real-world ones. In order to effectively conduct radio exchanges, students need to develop listening comprehension skills and the ability to apply and distinguish basic grammatical constructions and clusters. In addition, students must pronounce phrases phonetically clearly and at a certain rate of speech understandable to other communicators. All these skills are taken into account when students, and later professional pilots and dispatchers, take the ICAO Operational Level Examination.

The operational Level 4 (out of six levels on the ICAO scale) must be achieved in all areas of language proficiency, namely: pronunciation, grammatical

structure, vocabulary, fluency, comprehension, and interactions. That is, at ICAO Level 4, a person must have an accent that does not interfere with understanding; possess grammatical structures in a way that errors, if they occur, do not distort the meaning; be able to paraphrase if vocabulary is insufficient; speak at a pace appropriate to the ICAO scale; understand the interlocutor; and be able to clarify and confirm information when in doubt about understanding. Thus, ease of language comprehension becomes the main focus of aviation English training in an operational context. Ultimately, aviation English serves as a means of communicative interaction rather than merely a training goal.

Conclusions. All things considered, English language proficiency is a critical factor in aviation safety, as communication failures have been identified as a contributing factor in many aviation incidents and accidents. While standardized phraseology provides a structured approach to communication, it does not fully address the challenges of non-standard situations. The inability of aviation specialists to apply their language skills effectively in emergency situations reveals the gaps in language training methodologies.

Future research should be aimed at developing and integrating innovative language training methodologies to enhance English language proficiency in aviation working environments. Some key areas for further study include: Simulation-Based Training, incorporating real-time flight simulations and AI-driven scenarios; Enhanced Phonetic and Listening Training, addressing issues related to pronunciation, accents, and comprehension under various adverse working conditions; Personalized Learning Technologies, utilizing adaptive learning platforms that suit to students' linguistic strengths and weaknesses; Multimodal Training Approaches to combine visual, auditory, and interactive methods to improve information retention and application in real-world settings; Assessment and Standardization Improvements, which could refine ICAO Level 4 proficiency criteria and existing testing methodologies to ensure they meet the real-world aviation demands. By addressing these areas, we can improve aviation English training programs and ultimately achieve communication efficiency and enhance overall flight safety.

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