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Aviation English Proficiency as a Key Principle of Flight Safety

The paper investigates the concept, elements and peculiarities of Aviation English (clearness, conciseness, unambiguousness, simplified vocabulary, use of abbreviations and codes, absence of non-verbal codes and a high significance of a spoken word) and proves the need of the operational level of Aviation English for the efficient professional activity of pilots and air traffic controllers.

Nowadays professional communication is becoming extremely important as professionalism includes not only specialists' knowledge and skills, but also their ability to communicate appropriately in the professional environment possessing a certain conceptual-categorical apparatus, norms and rules of speech activity [3, p. 6]. Professionalism is very important in all life spheres but it becomes crucial in the spheres, where the sufficient level in English influences the lives of people, as in case of the professional communication of pilots and air traffic controllers. Numerous cases of their miscommunication having disastrous consequences have emphasized that the clear communication between them is vital. So the efficient professional activity of these specialists has an effect on the safety of flights.

The aviation industry require the so-called lingua franca for the professional communication of aviation specialists speaking different languages because misunderstandings between pilots and air traffic controllers during the radiotelephony communications, incorrect translation of aviation terms and their transmission via radio channels have led to multiple accidents. That's why it has become important to introduce the unified rules connecting all the users of the international airspace in order to organize the whole aeronautical communication. Moreover, taking into consideration the accidents resulting from misunderstandings between pilots and air traffic controllers due to the lack of language skills, the need for a common universal language for international aviation was indisputable. To achieve this goal, ICAO has established standards according to which English became the official language of aviation [6, p. 51].

The importance of Aviation English mastering can be understood by keeping in mind the accidents caused by a human factor, and particularly a language factor.

One of the most disastrous accidents happened in Tenerife in 1977, caused by the miscommunication between the air traffic controller and the pilot while giving vital information (both of them were not native speakers of English) [5]. Being firmly sure that they had got the take-off clearance, the KLM Boeing 747 took off in poor visibility without receiving the clearance and collided with Boeing 747 of PanAm airlines blocking the runway.

Later, in 1990, Boeing 707 crashed when it ran out of fuel. As it was reported, one of the contributing reasons of its crash was that the pilot failed to communicate an emergency fuel situation before full fuel exhaustion [5].

In 1995, Boeing 757 turned off its course when it was approaching Cali in Columbia and consequently crashed into a mountain. The principal reason was that the American pilots had lost situational awareness. The Columbian air traffic controller suspected the problem and could have prevented the imminent crash; however, having the insufficient level of plain English he did not manage to inform the pilot about it appropriately.

The mid-air collision of Il-76 of Kazakhstan Airlines with Boeing 747 in 1996 was also caused by a human factor or rather a language factor because of Kazakhstani crew's difficulty in communication [5].

These are only a few examples of accidents, caused by a language factor, but they prove the importance of the process of effective language training of future aviation specialists. ICAO has defined the following three ways when a language can be a contributing factor in accidents: *incorrect use of standardized phraseologies* (the accident in Tenerife); *lack of plain language proficiency* (Boeing 707 crash in 1990, the accident in Columbia in 1995, the Il-76 crash in 1996); and *the use of two languages in the same airspace* [8, p.1-1].

The aforementioned facts as well as the necessity to reduce miscommunications between aviation specialists have intensified researchers' interest in various aspects of aviation English (O. Akimova, Ye. Kmita, T. Malkovska, O. Moskalenko, S. Baral, S. Lopez, J. Mell, K. O'Brien, P. Ragan and others) and enhancing pilots and air traffic controllers' training (T. Tarnavska, O. Petrashchuk, O. Kovtun, O. Vasiukovych, V. Piven, S. Tymchenko, etc).

Let's consider the concept of Aviation English. It is a broad term covering the language used by different aviation professionals. But in our research we will consider Aviation English only for radiotelephony communication, the participants of which are flight crew members and the air traffic controllers, because these specialists are of our concern.

Aviation English (also known as Radiotelephony, Airspeak, or Skytalk) was created for a special field of aviation activity. The exchange of information and its proper comprehension are fundamental in aviation. The speed, accuracy and reliability of the whole "air traffic controller – pilot" communication are influenced by the accurate and clear comprehension of the received information by them, and the efficiency of its processing.

In most cases, Aviation English is associated with phraseology but it does not fully rely on it. As indicated in ICAO Doc. 9835, the phraseology must "provide clear, concise, unambiguous language to communicate message of a routine situation" [8]. Covering many circumstances, standardized phraseology cannot include all needs of these professionals, and the "spontaneous, creative, and non-coded" plain language [8] can assist significantly. Therefore, in cases of unpredictable events, pilots and air traffic controllers rely on their intelligence and skills to communicate effectively and make a quick decision. Thus, aviation English combines both standardized phraseology and the plain English language.

Radiotelephony belongs to a group of semi-artificial languages, created to be used in the professional environment. It has a range of peculiarities related to the use of professional phraseology and technical terms, but it also incorporates the elements of technical, professional and common English. This communication consists of a simplified vocabulary and a set of rules for its use. The need to create simplified English in the field of aviation has arisen because of the increased technical complexity of aircraft and the growing number of technical documentation. Compared with the plain English language, the standardized phraseology has minor differences in pronunciation and intonation, but significant differences in grammatical structures as well as certain requirements for the pace of speech.

Standardized phraseology is based on the principles of conciseness, unambiguousness, clearness, completeness and content-richness. In addition, it should also be characterized by rigid structuring, a great number of numerals, and terminology. It is a spoken language, mainly in the form of a dialogue. In addition, this language is characterized by the restriction of synonymy, absence of polysemy, avoidance of terms with ambiguous meanings (jargons, metaphors, idioms, etc), use of a specific aviation alphabet, use of special phrases to define the purpose of speech acts, wide use of proper nouns (such as geographical locations, names of airlines, aircraft, etc), use of special words and word combinations to make the phrase concise (Roger, Pan, Mayday, etc), use of abbreviations, use of codes for designating notions, etc.

Since the radiotelephony communications does not involve visual contact between its participants, non-verbal codes of gestures, movements and facial expressions do not contribute to the conversation. In addition, different kinds of interferences prevent from accepting speech intonation properly [1, p. 27]. In such conditions, the text and the word carry an important meaning; therefore they require the special attention.

The concept of Aviation English is described differently by various researchers. M. McGrath considers it as "a combination of professional jargon and work-oriented uses of English" and "the element of the bi-lingual communication medium" [9, p. 38]. A. Kukovec thinks that it is "an established linguistic norm" [7, p. 131]. In P. Ragan's opinion as well as in all ICAO documents, aviation English is "the lingua franca for aviation" [8], [10].

The concern with plain language and standardized phraseology is well-grounded. However, although English is the international language of aviation, it is not the native language for all aviation specialists who use it. Thus, the levels of the English language among aviation specialists differ greatly. Moreover, continual immigration and relocation of population have resulted in inability to assume a common language background among the inhabitants of any given country, even those where English used to be the native language. These political changes and needs have significantly affected the use of English in aviation. The aforementioned factors have drawn attention to the necessity for proper language training and international cooperation regarding acceptable standard of English as the lingua franca in aviation [10].

In addition to plain English and standardardized phraseology, pilots and air traffic controllers should possess sufficient professional knowledge, including its

technical and practical features, as their profession has its own specific features and is a technical world with its own language, lexical units and concepts unclear to most ordinary people. Only in this case we can talk about mastering Aviation English.

The minimum required level for pilots and air traffic controllers taking part in international flight operations and not sharing a common language is the Operational Level 4 out of six proficiency levels (by ICAO). The lower levels are insufficient due to safety reasons, because if such a specialist is not proficient enough in pronunciation, vocabulary, fluency, etc, he/she can have significant difficulties in communications.

Conclusions

Thus, flight safety and correspondingly the life of the passengers and flight crew depend to some extent on how effectively a pilot communicates with an air traffic controller. During their communication, these specialists face various unpredictable situations, requiring new ways of acting and using both standardized phraseology and the plain language. Although it is impossible to solve these problems by a well-established algorithm, proficiency in English can assist in overcoming many difficulties.

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