

*L. Konoplianyk, PhD in Pedagogics
(National Aviation University, Ukraine),*

*O. Kovalenko, Lecturer
(National Technical University of Ukraine "KPI", Ukraine)*

Professional communicative competence of future air traffic controllers as a required component of flight safety

The article analyzes professional communicative competence of future air traffic controllers, considers the structure of this competence and defines its main components. It proposes interactive teaching methods to optimize the process of developing professional communicative competence.

The human factor has always been an important area for investigations because it is considered to be one of the main reasons leading to aircraft accidents. Prevention of human errors is one of the principal safety issues in aviation. Although the human factor can involve all aeronautical personnel related to aircraft operations, it concerns mainly air traffic controllers and pilots who play the crucial roles in aircraft operations.

The objectives of an air traffic controller are to ensure the safe flight by directing and controlling the flow of air traffic; prevent collisions between aircraft, an aircraft and obstructions on its area; give landing and takeoff instructions to pilots; provide pilots with advice and information (such as weather updates and other essential data); assist the pilots in reaching their destinations, etc. To achieve these objectives they have to conduct multiple functions (thinking, listening and speaking) simultaneously. Taking into consideration the complexity of this task, there is the high probability for an air traffic controller to make errors when traffic is heavy and when communication is in non-native English.

In order to improve flight safety and eliminate errors, ICAO has strengthened English language proficiency requirements for the air traffic controllers who communicate with foreign pilots and for the pilots operating on international routes. ICAO Doc 9835 states that these specialists must have ICAO English Language Level 4 (Operational) or above. These standards require from air traffic controllers and pilots to be able to communicate proficiently using both ICAO phraseology and plain English [5, P. 3-5–3-6]. ICAO phraseology must be applied in all specified situations which are encountered in the daily practice of air traffic controllers and cabin crews. However, when the unexpected situations happen (e.g. a pilot loses his way, the aircraft has a technical problem, equipment fails, someone provokes a bomb alert, etc) and the standardized phraseology is not sufficient for successful interaction, plain English can be used. But plain English is also restricted by the functions and topics and by specific safety-critical requirements for intelligibility, directness, non-ambiguity and conciseness. [5, P. 3-5].

Proficiency in aviation English is very essential for these specialists even if it is not their native language. Air traffic controllers must comprehend the information and come up with appropriate actions quickly. They must be able to transmit messages to

pilots, understand different accents, ask and answer questions, inform about intensions and unusual situations, request information from pilots, solve linguistic difficulties, clarify misunderstandings, etc. Above-mentioned skills are one of the components of professional competence of air traffic controllers – professional communicative competence. Inadequate knowledge of English and skills such as: inability to transmit the message and communicate with pilots quickly, clearly and unambiguously can result in a tragedy the price of which is a human life.

Since the development of communicative competence as an essential component of air traffic controllers' professional activity is one of the main tasks of modern aviation universities, it encourages modern researchers to look for effective methods, techniques and pedagogical conditions for developing this competence.

The investigations by N. Bibik, N. Hlushanytsia, L. Karpova, N. Lobanova, O. Lokshyna, A. Makarova, L. Mitina, H. Onkovych, O. Ovcharuk, O. Pometun, O. Savchenko, V. Slastionin, I. Ziaziun and others are devoted to the problem of improving the professional competence of specialists in different areas. The main aspects of professional competence of aviation specialists including air traffic controllers are shown in the scientific papers of Ukrainian scientists (Ye. Kmita, L. Nemlii, V. Piven, T. Tarnavska, T. Lavrukhina, G. Paschenko, O. Kovtun, S. Tymchenko, V. Yahupov et al.). The analysis of these publications confirms the necessity of further investigation into new ways to improve the future controllers' professional communicative competence in order to provide the international airways with highly qualified professionals.

Since the second part of the XXth century the professional aviation communication has been considered as an important component of aviation operators' professional competence and activity that is directly related with flight safety [2]. As air traffic controllers assist pilots during all phases of flight – from aircraft take-off to its full stop at the parking lot or in a hangar after a flight, their interaction and communication directly influence flight safety. Today a number of aviation organizations are concerned about the role of the language factor in aviation accidents and incidents.

Accident researchers identify the factors that ultimately cause an accident. The language misuse or misunderstandings contribute both directly and indirectly to an accident. According to ICAO Doc 9835, there are three language factors leading to accidents and incidents: incorrect use of standardized phraseology, lack of plain language proficiency, and the use of more than one language in the same airspace [5, P.1-1].

V. Yahupov explains them from the point of view of air traffic controllers' competence development and adds some more reasons:

- a) incorrect use of standardized phraseology (underdeveloped foreign language competence);
- b) lack of plain language proficiency (insufficient spoken language competence development);
- c) the use of several languages in the same airspace (lack of social and strategic competence);

d) availability of sufficient knowledge and skills for aeronautical radiotelephony communication with pilots but lack the ability to apply them in extreme cases (incomplete formation of professional foreign language communicative competence);

e) availability of sufficient knowledge and skills for aeronautical radiotelephony communication with pilots but the sudden use of a native language both in standard and non-standard situations [2].

Thus, professional communicative competence is one of the most important components of professional competence for air traffic controllers in order to be competitive specialists.

Air traffic controllers' professional (foreign language) communicative competence is a complex of his/her foreign-language communication knowledge and skills, the ability to use them properly for communication in the process of aeronautical radiotelephony communication with a pilot on the international air routes in different conditions of professional interaction [2].

There are different approaches to define the structure of professional communicative competence. Let's consider this competence in details.

M. Canale and M. Swain consider that communicative competence includes three main components: grammatical, sociolinguistic and strategic competence [3]. D. Hymes proposes essentially the same classification but he uses the broader term 'linguistic competence' instead of 'grammatical competence' and adds a discourse competence [4].

ICAO Doc 9835 combines the aforementioned components to describe air traffic controllers' communicative competence:

- linguistic competence (knowledge and application of the linguistic features of a given language);
- sociolinguistic competence (understanding the occupational and social context in which language is used);
- pragmatic competences (a number of skills used to make or give meaning to language in a definite situation or context) that includes strategic competence, discourse competence and functional competence [5, P. 2-2].

N. Hlushanytsia identifies three competences as the components of foreign language communicative competence (linguistic, language and sociocultural competences) [1, P. 103], and R. Valeeva supplements this list with three additional components (discourse, educational-cognitive and strategic competences) [6, P. 176].

V. Yahupov and Ye. Kmita propose their own theory of professional communicative competence of an aviation specialist that includes the following components: value-motivation component, emotional-willed component, cognitive component, operational component, foreign language communicative competence, characteristics important from the professional point of view, control-valuation competence, and a subject component [2].

On the basis of the investigations into competences carried out by Ukrainian [1, 2] and foreign scientists [3, 4, 6], we define the following main components of future air traffic controllers' professional communicative competence:

1. *Linguistic competence*. It refers to the knowledge of vocabulary, grammar, pronunciation and spelling of a given language and its appropriate use. It has the following subskills: lexical skills (single words and expressions), grammatical skills

(syntax and morphology rules), semantic skills (meanings of words and expressions) and phonological skills (sounds, structure of syllables, intonation, rhythm, and sentence stress).

2. *Language competence*. It refers to speech skills (monologues and dialogues), as well as listening, reading and writing skills.

3. *Sociolinguistic competence*. It refers to understanding the social and professional context where English is used. This competence means being able to use appropriately the markers of register differences, different dialects and accents, social relations, and politeness conventions.

4. *Strategic competence*. It refers to the ability to use verbal and non-verbal strategies to compensate for the lack of linguistic knowledge; the ability to balance the lack of linguistic knowledge (and the lack of foreign language knowledge) in the communication process [6, P. 177].

5. *Discourse competence*. It refers to the ability to combine several sentences to construct coherent texts. This component also means the ability to construct discourse, i.e. to apply and interpret forms and meanings of words to construct texts, the ability to organize coherent texts and use cohesion means.

6. *Functional competence*. It refers to the knowledge of and ability to apply the rules for interpreting language structures; the ways in which these functions are usually sequenced to make conversational structures; and assessment of results of the use of language in the real professional activity.

7. *Cognitive competence*. It refers to general and special training skills, methods and techniques of language and culture learning including the use of new information technologies; the awareness of and ability to gain and develop knowledge, identify and analyze factors influencing the working process.

8. *Professional component* of the competence, which includes:

- motivation component (formation and development of positive motivation, interests, values, needs and special attitude to air traffic controllers' future professional activity);

- competence in using one's own subject-related expertise and the available learning resources, i.e. being an expert in future profession;

- operational component (special experience, habits, behavior, technical abilities, analytical skills and logical thinking, the skills of fast and effective decision making in the lack of time conditions and in difficult situations).

The development of future air traffic controllers' professional communicative competence is carried out during their study at aviation universities. The professional communicative competence is the objective of language teaching: the preparation of air traffic controllers for profession-oriented communication. The effective teaching methods at ESP classes for improving the knowledge of standardized phraseology and plain English and developing professional communicative competence are interactive methods. When applying interactive methods, all students in a group interact and communicate. Due to these methods students get knowledge, develop critical thinking, reflection, ability to reason and solve problems quickly. The most effective interactive teaching methods for air traffic controllers include case methods (problem-solving activities), brainstorming, project methods, discussions and round-tables, business games, role-plays, pair work, etc. Case methods promote the development of critical

reflection and better understanding of the theory, teach to solve problems and analyze them. Applying this method in teaching makes the educational process similar to the real conditions of the future profession, promotes the development of listening and speaking skills, stimulates to read additional material. Project methods form communication skills, communication culture, the ability to formulate clear and concise thoughts, be tolerant to the opinion of the partners in a dialogue, develop the ability to receive information from different sources, create the language environment, which causes the natural need to communicate in English.

Conclusions

Professional communicative competence of air traffic controllers is a very significant part of the professional competence that is caused by special features of their professional activity both in standard and non-standard conditions. The high level of developed competence leads to efficient interpersonal communication. The identified competences can serve as a basis for improving or changing the existing learning practices. The culture of professional communication of the future air traffic controllers is formed during ESP classes where the use of interactive methods broadens the personal potential of future specialists, giving them more opportunities to study English successfully and promotes the rational use of training time.

References

1. Глушаниця Н. Формування іншомовної професійно-комунікативної компетенції майбутніх фахівців з авіоніки як педагогічна проблема / Н. Глушаниця // Наукові записки Вінницького державного педагогічного університету імені Михайла Коцюбинського. Серія: Педагогіка і психологія : зб. наук. праць. – Випуск 34. – Вінниця : ТОВ фірма «Планер», 2011. – С. 101 – 105.
2. Ягупов В. Професійна комунікативна компетентність диспетчерів управління повітряним рухом: поняття, сутність і зміст [Електронний ресурс] / В. Ягупов, Є. Кміта // Педагогические науки. – 2012. – Режим доступу: http://www.rusnauka.com/4_SND_2013/Pedagogica/2_127258.doc.htm
3. Canale, M., Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing // *Applied Linguistics*, 1(1). [Електронний ресурс]. – Access mode: <http://ibatefl.com/wp-content/uploads/2012/08/CLT-Canale-Swain.pdf>
4. Hymes, D. On Communicative Competence // *Sociolinguistics*. – New York : Harmondsworth : Penguin, 1972. – P. 269 – 293.
5. Manual on the Implementation of ICAO Language Proficiency Requirements. Doc 9835 AN/453. 2nd ed. – Montreal : ICAO, 2010. – 150 p.
6. Valeeva R. Foreign Language Professional Communicative Competence as a Component of the Academic Science Teacher's Professional Competence / R. Valeeva, O. Baykova, A. Kusainov // *International Journal of Environmental and Science Education*. – V. 1, №3. – 2016. – P.173 – 181.