

KEY FEATURES OF PROFESSIONAL FOREIGN LANGUAGE COMMUNICATIVE COMPETENCE OF ENGINEERS

Nataliia Snizhko

Candidate of Science (Physics and Mathematics), Associate Professor,
Associate Professor at the Department of Mathematics,
National University “Zaporizhzhia Polytechnic”, Ukraine
e-mail: snizhko.nataliia@gmail.com, orcid.org/0000-0003-4547-5934

Yuriy Polyezhayev

Candidate of Science (Social Communications), Associate Professor,
Associate Professor at the Department of Foreign Philology and Translation,
National University “Zaporizhzhia Polytechnic”, Ukraine
e-mail: yuriy.brikrio@gmail.com, orcid.org/0000-0001-9160-6945

Summary

The authors analyze the approaches towards interpreting the notions of “foreign language competence”, “foreign language communicative competence”, and “professional foreign language communication”. The professional foreign language competence of the specialist is regarded as a result of the integration of professional and foreign language communicative competence. The interrelation between the university graduate's general communicative competence and professional foreign language competence is scrutinized. The components of foreign language communicative competence of engineering students are analyzed. The structure of this competence is based on the analysis of requirements set for the graduates by the job market. Cognitive and operational-technological competences comprising the professional section of the specialized part of the social-professional foreign language competence of the trainee engineer are relevant to the special competences of the linguistic section staying in a dynamic interaction with them. The offered model was successfully tried out during the interconnected learning of engineering subjects and a foreign language at Zaporizhzhia Polytechnic National University.

Key words: competences, formation of competences, foreign language communicative competence, professional engineering education, bilingual learning.

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1. Introduction

The shift to a new paradigm in higher professional education and strengthening international contacts in the academic community and job markets have caused a sharp increase in the importance of foreign language training for high school students. The aspirations of Ukrainian universities to take recognizable positions in the world ratings lead to additional requirements for students' foreign language proficiency. The university students must have competences connected with performing professional- and academic-related tasks in a foreign language: giving reports at international conferences, participating in academic exchange and internships, and publishing scholarly papers in high-ranking foreign journals. Similar requirements are set for

specialists with higher education degrees in their professional activities. It is especially topical for technical institutions of higher education as technology is the sphere where international experience and international contacts come into play most actively. At the same time, the subject "Foreign language" is traditionally regarded as secondary, non-profile at such educational institutions. The importance of foreign language training is most often underestimated not only by students, but also by lecturers leading to discrepancies between the level of requirements to the results and the products of international professional and academic activities and the insufficient readiness for performing them. According to the authors, the effective method of solving this discrepancy is the integration of foreign language and professional training of intending engineers.

This paper aims to review different approaches towards interpreting the notion of foreign language communicative competence, its interrelation with professional competence, and based on the undertaken analysis to ascertain the structure of social-professional foreign language communicative competence of the intending engineer (based on experience of work at the Ukrainian technical university).

2. Concept of Foreign Language Communicative Competence

The idea of differentiating between grammar competence and language performance was offered by N. Chomsky back in 1965. Grammar competence is characterized by a set of linguistic knowledge allowing to generate an unlimited number of correct grammar constructions, while performance is a real usage of language in a specific situation (*Chomsky, 1965: 10*). In 1972, D. Hymes introduced the idea of communicative competence as a possibility to choose correct grammar means for different communicative situations, thus adding the sociolinguistic aspect to the specific linguistic one (*Hymes, 1972*).

Later on, the concept of communicative competence was analyzed by M. Canale and M. Swain in the context of learning foreign languages. Three components of foreign language communicative competence were offered: grammar, strategic, and sociolinguistic (*Canale, & Swain, 1980*). Soon, the pragmatic, or discourse component was singled out of the sociolinguistic one (*Canale, 1983*). This structure stood to the test of time and remained basic for educational usage.

Linguistic competence determines the ability to adequately use language means to generate utterances and texts in accordance with the language norms in oral and written speech. It consists of the following elements:

- lexical (knowledge of the lexis including phrasal units, and stable expressions);
- grammar (knowledge of grammar elements and ability to use them in the language; ability to understand and express certain meanings, to express them in phrases and sentences created according to the rules of the language);
- semantic (knowledge of possible ways of expressing a certain meaning and ability to use them);
- phonologic (ability to perceive and recreate sound units of the language adhering to the accuracy of stress, intonation, and rhythm);
- orthographic (knowledge of symbols used to create a written text and an ability to recognize them and recreate them in writing);
- orthoepic (knowledge of spelling rules, ability to use a dictionary, and to determine the word's meaning according to the context).

Sociocultural competence requires the presence of knowledge and skills needed for the effective use of language in the social context, specifically:

- linguistic markers of social relations (choice and usage of greeting formulas, forms of interaction, ability to perform a dialogue);
- principles of politeness (adequate usage of language etiquette formulas);
- communication registers (official, colloquial, intimate, solemn, neutral);
- cultural specificity of the individual/group taking part in the communication;

Pragmatic (discourse) competence calls for the ability to generate utterances as units of language and communication.

Most modern (as well as Ukrainian) researchers represent the foreign language communicative competence (without correlating it with professional activities) as the unity of linguistic, sociolinguistic, and pragmatic competences. The same structure is defined by the concept of the Common European Framework of Reference for Languages (*CEFR, 2001*) and was used in developing this framework.

This list of the above-mentioned components of the foreign language communicative competence is not exhaustive. Many researchers add a strategic competence which provides a person with skills and readiness to use different methods, tactics, and strategies of verbal and non-verbal communication to reach mutual understanding depending on a specific communicative situation and according to sociocultural norms of their usage (*van Ek, & Trim, 1992: 89; Ridel, & Kyrychenko, 2020; Snizhko, 2024*).

Professor M. Celce-Murcia mentions the following components of communication strategy:

- strategy of compensation for lack of language knowledge by switching the language code, involving means of the close lexical-grammatical field, using mimics and gestures;
- strategy of buying time using such phrases: *Where was I? Could you repeat that?*;
- strategy of self-control: phrases modifying or correcting what was said before: *I mean...*;
- strategy of interaction which provides an opportunity to ask for help and an explanation, making sure that the meaning is understood correctly;
- a social strategy aimed at finding any available possibilities for language practice, preferably with a native speaker involved (*Celce-Murcia, 2007*).

In the same work, M. Celce-Murcia introduces a formulaic competence as a stand-alone element of foreign language communicative competence determining the ability to use prefabricated chunks of language often found in communication. Such structures include:

- stable phrases such as, of course, all of a sudden, and communication cliches. *How do you do? I'm fine, thanks; how are you?*;
- collocations: verb-object *spend money, play the piano*, adverb-adjective *statistically significant, mutually orthogonal*, adjective-noun *tall building, legible handwriting*;
- idioms: *to kick the bucket = to die; get the ax = to be fired/terminated*;
- lexical frames: *I'm looking for _____. See you (later/tomorrow/next week, etc).*

Meanwhile, confident users of language are stated to use formulaic constructions in their speech no less often than their language knowledge.

We believe that practicing skills (as automatized components of conscious activities) of using such constructions is an important element of both specifically formulaic and strategic competence of the engineer. It can be explained in the following way. First of all, accurate usage of formulae and its positive perception by the interlocutor create a situation of success and confidence, which can lower the psychological barrier and positively influence the quality of communication. Secondly, time and brain resources are freed to organize the next utterance.

The competences reviewed above (linguistic, sociocultural, pragmatic, strategic) can be classified as general, while their connection with communicative competences relevant to engineering proper is not found. These relations are indispensable for creating a model suitable for effective usage in teaching a professional foreign language.

3. Professional foreign language communicative competence: the Ukrainian approach

We will interpret foreign language communicative competence (the actualization of the competence) as the readiness and ability of the person to understand and generate foreign language utterances and information according to a specific situation, a specific set aim, a communicative intention, and professional tasks.

While showing the pedagogical content of the concept of “foreign language communicative competence”, a productive decision seems to be to address the characteristics of the notion of “professional communicative competence” as we believe that foreign language competence is tightly connected with professional competence, and, what is more, is a component of its structure. Thus, professional competence includes not only the idea of qualification (professional skills as work experience, abilities, and knowledge) but also mastering social-communicative and individual abilities which ensure the autonomy of professional work (*Tkachenko, 2003*).

The Ukrainian sources present different approaches to defining the interrelation between the foreign language communicative approach and professional competence.

Some researchers regard the notion of foreign language communicative competence as an experience of using the language at the variable-adaptive level depending on a specific speech situation (*Tynkalyuk, 2008: 55*). They also stress the necessity for students to have compensatory abilities and some experience in solving typical communicative tasks (*Kulichenko, & Polyehayev, 2020; Viakhhk, 2013: 27*). So, this approach is rather general and lacks singling out the proper professional foreign language communicative competence.

Other researchers include professional aspects in the structure of intercultural foreign language competence (*Kozak, 2001: 12; Nikolaieva, 2013: 36*). The cognitive level of intercultural competence of students calls for mastering local lore, sociocultural, social interaction, and also professional knowledge. Professional foreign language communicative competence is “formed in the process of learning a foreign language. This ability allows one to freely and adequately (according to the social and role situations of professional activity) understand and produce relevant utterances in speech according to theoretical ideas and knowledge which play an informational and communicative function, and practical abilities and skills that ensure perceptive-communicative and interactive-communicative functions of communication by means of a foreign language” (*Kozak, 2001: 12*).

A reverse situation is possible when the professional competence of a future graduate of a technical university is regarded as a system-building notion. For instance, N. I. Kostenko states that the efficiency of a specialist's work largely depends on the level of integration of the language component in the general structure of their subject and technological training. According to the researcher, the formation of foreign language communicative competence requires “superimposing” foreign language skills on the subject content of the profession while performing professional tasks. Teaching the academic subject “Foreign Language” should be substantially directed at reaching the general goal of learning – formation of the graduate's professional competence (*Kostenko, 2012: 86*).

L. Onufrieva mentions the fact that students often show a low motivation towards learning a foreign language as they do not see a connection between a foreign language and their professional subjects. Still, with a certain way of managing the foreign language lessons (using authentic materials; staging group interactions – presenting projects, speeches, professional reports to a group, etc.), a higher level of foreign language proficiency can be reached (Onufrieva, I. & Onufrieva, L., 2011: 727).

Finally, there is a balanced approach. The need for professional interaction can be taken into account more deeply if a complex professional and foreign language competence is formed. The proponents of this approach regard complex professional and foreign language competence as an integrative quality of a future professional's personality with a complex structural organization. This competence includes three components: motivational-value (an interest in professional and foreign language training and understanding of its significance); cognitive-active (combining a foreign-language communicative competence in the sphere of professional work with general competences being professionally significant qualities and abilities); emotional-will (connected with an adequate self-assessment of abilities and developing a sense of responsibility). According to O. O. Pavlenko, “foreign language communicative competence is an integrated component of communicative management, communicative and professional competences requiring the proficiency in language and professionally-oriented speech at a variation-adaptive level, and also at the level of uninhibited business communication (for professionals with a high level of communicative-professional competence), solving tasks of forming a positive image of an organization or a person” (Pavlenko, 2005: 440).

M. M. Halitska believes that foreign language communicative competence is “an integrative professional characteristic of the personality determining the level of professionalism of the future specialist in their foreign language communicative competence and includes needs, motives, psychological qualities, subject and intellectual knowledge, abilities and skills which allow using a foreign language to complete job-related tasks” (Halitska, 2006: 184).

4. Social-professional foreign language competence of the intending engineer

It can be inferred that academics offer a range of aspects for foreign language professional communicative competence: linguistic, discourse, strategic, sociocultural, social, linguo-professional, social-informational, social-political, and individual. There is a notable fact that while the structure of professional competence is rather complex and detailed, its receiver, the intending professional, is not described, and the needs of their future profession are not outlined. For instance, the reference to "a future graduate of a technical university" in the conditions of the modern Ukrainian educational space is not informative as among the graduates of such universities we can meet, among engineering majors proper, economists, programmers, specialists in regional management, and many others whose fields of future activity coincide only partially.

We believe that during the development of the structure of foreign language professional competence of the future engineering specialist, they should take into consideration the requirements set by the job market and the possibilities of the educational process at the modern Ukrainian technical university. In other words, the components of this structure should be tailored to personal requirements and have a potential for practical implementation.

These conditions can be fulfilled by *the social-professional foreign language communicative competence of the intending engineer* (fig. 1), the formation of which takes place during the entire term of study at an institution of higher education.

The general part is represented by four traditional competences: linguistic, sociocultural, pragmatic, and strategic. The formation of these competences happens during the first year of study in the process of teaching the general course of a foreign language whose aim is to teach to use the language in situations of social interaction which can be interpreted quite broadly.

The special part is divided into two sections. The first (conventionally linguistic) is represented by special linguistic, sociocultural, pragmatic, and strategic competences aimed at the professional field. This section is in the dynamic interaction with the second (professional proper) section which components are cognitive and operational-technological competences. Both sections are connected with the motivational-value competence which both coordinates them and is influenced by them according to the feedback principle.

The linguistic section of the professional part can be partially formed in the process of teaching a professionally oriented (business) foreign language to students at relevant departments of universities within the humanities cycle. However, it can be substantially enriched by organizing interconnected teaching of special disciplines and a foreign language, specifically in bilingual learning. For this purpose, both basic fundamental courses (calculus, physics, theoretical mechanics, descriptive geometry, electric technology, strength of materials) and elective courses set by educational standards are used.

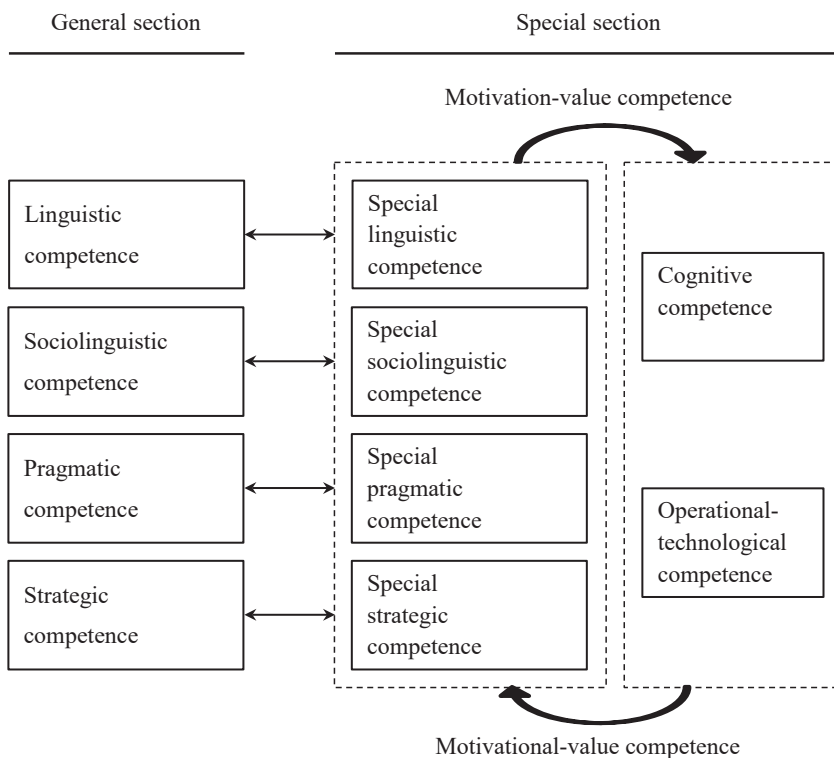


Fig. 1. Structure of social-professional foreign language communicative competence of the intending engineer

Both sections of the professional part develop in their mutual coordination, but the linguistic section in this structure has a higher variability. If the major changes while competences are implemented in practice, the linguistic section of the old major remains subsequently undergoing modifications and serving to form a new professional section.

The components of the foreign language professional section are:

1) cognitive competence:

- foreign language knowledge in the field of mathematics and general engineering subjects;
- foreign language knowledge of specialized subjects;
- knowledge of systems of measurement, variables, terms, standards, specifications, and codes of the countries in which languages are studied;
- foreign language knowledge in the field of organization and interpretation of graphical information;
- knowledge of the specificity of engineering management in countries in which languages are studied;

2) operational-technological competence:

- ability to communicate in writing and orally in a foreign language within the framework of professional standards;
- ability to cooperate in the field of preparation, interpretation, and presentation of information in a foreign language;
- skills of independent search for professionally significant information in a foreign language;
- ability to understand the received instructions and to develop accurate and clear instructions;
- situational choice of relevant ways of communication, including extra lingual means;
- ability to prepare the material for publishing in professional engineering (technical) journals;
- ways of effective delivery of engineering (technical) information to employees and other recipients;
- creating, understanding, and using engineering (technical) documentation;
- managing negotiations, exchange of ideas, and resolving conflicts.

Thus, cognitive competence is essentially a set of knowledge, while operational-technological competence provides ways of organizing this knowledge. Both competences act as certain "customers" of the first (linguistic) section.

The linguistic and professional section of the specialized part of social-professional competence is integrated by motivational-evaluative competence (interest in professional and foreign language training, understanding its significance, need for life-long professional self-education and self-development).

5. Conclusions

The analysis of different approaches (both Ukrainian and foreign) towards interpreting the notions of "foreign language competence", and "foreign language communicative competence" has shown the existing discrepancies in determining the type of connection between the general foreign language communicative competence and professional foreign language competence. One approach includes the professional aspects of the structure of intercultural foreign language competence; the other, conversely, regards the professional competence of the intending

university graduate as a system-creating notion, and within its framework, there resides the foreign language component. There exists an approach towards interpreting foreign language communicative competence as an experience of using the language at a variable-adaptive level depending on a specific speech situation. It means that it does not involve singling out a specific professional component. A balanced approach is deemed the most adequate and expedient regarding the complex professional and foreign language competence as an integrative personal quality of a future specialist with a complex structural organization.

While determining the structure of the foreign language professional communicative competence of the intending professional, it is necessary to start with analyzing the requirements set for their professional work. The available definitions and structural models of foreign language professional communicative competence do not include the specificity of engineering related to special features of engineering objects, the plurality of the ways of their description, the great significance of extralinguistic factors and phenomena in engineering communication, the availability of the information coding system (units of measurement, specifications, standards, etc.), the importance of instructive written and oral communication, the need for organizing cooperation within interdisciplinary work teams.

Based on this approach, the research offers the structure of the social-professional foreign language communicative competence of the intending engineer, which includes the linguistic and professional sections of competences. The links between the structural elements and their relations have been ascertained. The results of the study are being implemented in the academic process at Zaporizhzhia Polytechnic National University within the framework of integrated bilingual teaching of a foreign language and engineering subjects (both professional-oriented and fundamental).

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