Introduction

The growing role of communication in modern Ukrainian society, the integration of cultures, and the processes of information exchange intensification at all levels of social interaction determines the need to form a communicative culture of the individual. Therefore, the need for in-depth formation of students’ communicative culture during their higher education studies is increasing every year.

The modern labour market requires highly qualified competitive specialists capable of a constant and systematic search for new ideas and their realization in practice, constructive interpersonal interaction and creative solutions to various production problems. Hence, the logical task of modern higher education institutions is to train specialists with thorough professional knowledge and creative people capable of working in a team, sharing information and striving for self-improvement. In other words, the formation of the communicative culture of the personality of a modern specialist is a priority problem of today.

7.1. The essence, structure and functions of the communicative culture of the individual

The concept of communicative culture in scientific circulation appeared tentatively in the early 90s of the XX century. There are different approaches to the interpretation of the concept of communicative culture. So, O. Bondarevska, N. Kuzmina, and V. Slastyonin define the methodological basis of the communicative culture of personality. In turn, A. Bodalev and B. Lomov focus on the ideological role of communicative culture. Psychological bases for forming communicative culture are covered in the works of B. Ananyev, G. Andreeva, I. Zymnya, and A. Leontyev. The sociological aspect of communicative culture is traced in the scientific works of S. Samygyn and A. Rean. The interrelation of
spiritual and communicative culture is covered by A. Solzhenitsyn and E. Sokolov. And the linguistic component of communicative culture is analysed by B. Golovin, G. Mykhalska, etc.

So, the communicative culture of the individual is a social phenomenon in the broadest sense. In the communicative process, as a process of exchanging information and opinions, the statuses of things and subjects of communication are determined. Then there are requirements for the communicative culture of future specialists as a weighty precondition for their professionalism and professional culture. A properly formed communicative culture of a future specialist regardless of his/her speciality allows for further professional growth and self-realization of the specialist. Practice convincingly proves that any professional activity requires interpersonal interaction at the current stage of social development. The future specialists should be ready for versatile business contacts based on mutual respect, support, fairness and objectivity principles.

The problem of the formation of communicative culture in the personality of a future specialist is essential in pedagogy and is studied in the context of interpersonal interaction, communication culture, and behaviour. With the development of Ukrainian society, its informatisation, the peculiarities of communication change, and the new tasks and directions of research of communicative culture are actualized. In pedagogical science, this is reflected in the justification of pedagogical goals adequate to current socio-cultural problems and the development of appropriate pedagogical technologies, etc. The above fully applies to the current stage of development of society, accompanied by dramatic changes in the information communication and communication technologies system.

Understanding the relevance and importance of this problem prompted us to the need to determine the essence, components and functions of the communicative culture of the individual; disclosure of the role of self-educational activities of students of higher technical education in the formation of communicative culture, as well as justification of the characteristic features of the communicative culture of students of higher technical education.

Analysis of various scientific sources gives grounds for the assertion that communicative culture is one of the essential components of the general culture of a person. The content of this concept integrates the essence of the concepts of communication, communicativeness and culture. The term “culture” has many meanings; therefore, there is no single definition. We understand culture as a
complex social phenomenon relating to almost all aspects of public and individual life. So, according to the Great Dictionary of the Modern Ukrainian Language, the term “culture” (from Latin cultura - treatment, education, development) can be interpreted as “a historically defined level of development of society, the creative forces and abilities of man, expressed in the types and forms of organization of life and activities of people, in their relations, as well as in the created by them material and spiritual values”. [7, с. 1368].

As evidenced by the results of our study, the main component of this concept is humanity, humanity-creation, which consists of the specification of universal values inherent in every person. The product of culture is the man himself, who is also the creator of culture; the primary source of culture is human activity. Culture contains the methods and results of human activity.

Psychological and pedagogical literature analysis shows that most scientists (R. Artsishevsky, V. Andruschenko, A. Arnoldov, E. Ilyenkov, V. Krysachenko, V. Kremin, E. Markarian, V. Mezhuev, A. Radugin) distinguish material and spiritual culture. The latter, in turn, includes art, science, literature, philosophy, morality, and education. Thus, scientists in the spiritual culture traditionally distinguish between spiritual communication and spiritual contact with people, which has a unique social significance. Defining communication as a particular specific type of human activity, which plays a significant role in other types of activity, they outline three types: transformative, cognitive, and value-oriented, which are aimed at learning and transforming nature, society and man.

Consequently, it is advisable to consider communicative culture as a component of spiritual culture. At the same time, as the results of our study show, the spiritual culture of the individual is an integral system of elements: the culture of moral thinking, the culture of feelings, the culture of behaviour and the culture of communication, which in turn includes the culture of language, presented in Fig.1.

Concerning the concept of “culture”, communicative culture, according to S. Bezklubenko, can be considered in three aspects: as a particular case of communication; as a system-forming, integrating factor of society; as a branch aspect (along with artistic, aesthetic, informational) [2]. Our study is based on the branching aspect, as it gives grounds for the definition of communicative culture as a component of culture and allows to trace its interrelation with its other branches and to investigate the problem in the context of enculturation of the person. That is, the
The scientific content of the concept of “communicative culture” is disclosed through the content of the concepts of “communication” and “communicativeness”.

The carried out analysis of dictionaries showed that the concept of “communication” is synonymous with the concepts of “connection”, “connection”, “interaction”, “communication”, “information exchange”, and “message”. Consequently, communication is a set of interactions between people and communities in which information, skills, experience, and the results of life are exchanged. By communicating, people organize their activities, exchange information, address each other with gratitude, request, demand, mutually influence, and are formed as social objects. So, to communicate means to maintain relations, business communication with someone, and association for joint actions [7]. As the results of our study show, the term “communication” can also be considered as a particular case of communication, as a special case of interaction. Exactly such an approach, in our opinion, is essential for understanding communicative culture as a subject of pedagogical analysis as it allows us to consider various factors of influence on forming personal communicative culture.

The problems of communication at the level of “interaction” are considered by us from the perspective of the subjects of interaction, the role of which can be individual people, social institutions, institutions, or organizations. The implementation of the communication process involves the presence of the subject of communication and the bearer of communicative culture of different skills: general skills inherent in any activity (I. Zimnaya, A. Leontiev, A. Luria), and specific skills
characteristic only for communicative-speech activity. Let us note that communicative skills cannot be limited only to speech. They include a complex of manifestations of communicative behaviour of a person, including socially perceptive and interactive skills of the subject of communication.

Thus, the analysis of psychological and pedagogical literature allowed us to identify three interrelated components of communication: communicative (information exchange), interactive (organization of interaction) and perceptual (mutual influence and mutual understanding), which is shown in Fig. 2. The communicative component of the process of communication determines the features of information exchange (taking into account knowledge, skills and experience) between active subjects of communication. In turn, the means of the communicative process are different sign systems: language (or verbal communication) and gestures, facial expressions, and intonation (or nonverbal communication).

![Fig. 2 - Structural components of the communication](image)

An interactive component of communication: the organization of subjects of the standard communication strategy of interaction. Different interaction programs exist between people (from cooperation to competition). The perceptual component of communication, as evidenced by the results of our study, includes the process of
mutual perception and understanding of each other. Perception is primarily a process of forming an image of the other person in the interlocutor’s mind. Then another person’s basic mechanisms of cognition are identification and reflection [8].

Thus, we analyze the process of communication as a holistic phenomenon through the prism of information exchange between its subjects. In one case, the personality can be considered in a situation of communication “by itself”, that is, as an “autonomous subject”, in another – as a carrier of values of a group of people. That is, the communicative culture of the person correlates with the communicative culture of society and the culture of the person [11].

During the study, we found that the identification of the concepts of “communication”, “communication”, as well as “communication culture” and “communicative culture” is false. In this regard, scientists note that communication is not identical to communication. The content of the communication is the exchange of information, and communication is broader, it includes communication. Communication implies a connection between people. As a result, one person’s influence on another is carried out [1]. Any human action involves interaction with others, which occurs through direct or indirect relations with others, and therefore contains a communicative aspect. Actions, knowingly aimed at their semantic perception by others, from time to time are interpreted as communicative actions.

Thus, we can state that communicative activity is a specific cultural form of communication, a live exchange of information between people through signs and symbols, in which information is transmitted purposefully, is taken selectively, and interaction is carried out under certain rules and norms and the level of social intelligence of communication participants; the process of communicative activity is constructed as a system of related acts, where each such “act” is the interaction of two subjects endowed with the ability to proactively communicate between people [25].

Analyzing the research of scientists S. Amelina, V. Barkovsky, A. Belonozhko, T. Vasilishina, S. Vitvitskaya, N. Volkova, A. Godlevskaya, O. Kaverina, we concluded that communicative culture is considered as an essential characteristic of the specialist, one of the indicators of the level of professional training and are an integral part of the professional and pedagogical culture and culture of personality in particular, as well as the degree of assimilation of communicative experience in the form of knowledge, abilities, skills, a higher effective level of formation of communicativeness as a relatively stable property of personality, which promotes the
successful creative reception, understanding, absorption, use and transfer of information.

The natural basis of communicative culture is human communicativeness as a multidimensional phenomenon combining several components, among which communicativeness, social affinity, and altruistic tendencies are particularly important [20]. We understand communicability as a particular property of the person, which is shown in the ability to communicate with others and to receive pleasure from this process. Social relatedness is also a specific ability of a person, manifested in the desire to be among those with whom she communicates. Social relatedness, as noted by scientists, should be considered a stable formation associated with the professional and pedagogical orientation of the personality. The third component characterizes communicative and altruistic emotions associated with the desire to bring joy to the people with whom one communicates, with empathy for the joy of another [20]. The scientific literature also defines communicativeness as a three-component personal formation: the need for communication, the emotional state before, during and after communication and communicative skills and abilities [11]. This approach is actualized as the main in the study’s implementation process.

So, in conclusion, we notice that the professional education of an individual is a complex formation, essential components of which, besides professional knowledge, skills and abilities, are the culture of language, ethics of communicative behaviour, the system of value orientations, and world outlook culture. An important place in professional education belongs to the communicative culture, which determines the presence of certain personal qualities, abilities and skills of each specialist; ensuring the achievement of goals in interpersonal interaction with other people; providing an opportunity to communicate constructively, orient to success in professional activity; adapt to a new system of relations in the production team, strive for self-improvement and self-actualisation.

Given the outlined, communicative culture, according to our interpretation, is an integral, dynamic personal formation that provides adaptation and self-realisation of the individual in modern society. This opinion is confirmed by I. Tymchenko’s finding that the communicative culture of a future specialist is defined as a system of attitudes and actions serving as an individual’s model of orientation to meet the needs of self-realisation and how to achieve goals when communicating with other people [30]. In turn, A. Gavrylyuk considers communicative culture as a complex dynamic personal education, reflecting the socially conditioned level of development of the
personality, its readiness for communicative activity, the system of views and actions, providing the satisfaction of needs of self-realisation and the way of achieving goals in communication, fruitful benevolent interaction of people in different spheres of life [9]. As a set of special communicative qualities of the person, abilities, knowledge, and skills through which the individual prevents the emergence of psychological difficulties and predicts the effectiveness of interpersonal and professional interaction defines communicative culture A. Bilonozhko. She notes that communicative culture is a manifestation of personal reflection, the interiorised experience of universal culture, which determines the individual identity of the person; it is an incentive to self-realisation because it mediates the attitude to life, that is, a conscious search for self, desire and need for self-improvement, value attitude to their lives and community [3]. As testify the results of our research, features of the manifestation of communicative culture as a personal property influence flexibility-rigidity, anxiety, emotional firmness, dialogical consciousness and reflexivity, extravertedness-introvertedness, personal reflexivity, personal meanings, motives, personal motives and consequently the feeling of solitude, differential emotions. However, the basis of its formation is the experience of human communication at the level of macro- and micro-groups, whose activities are the primary sources of communicative culture. In general, we can state that experience is the basis of the cognitive component of the communicative culture of the individual as a subject of communication.

Thus, the above actualises the position that the experience of communication takes a special place in the structure of the communicative culture of the individual, determined, first, by its sociality (it contains interiorised norms and cultural values), second, individuality (is based on individual communicative abilities and personal events). At the same time, several other approaches to analysing this problem exist. In particular, Sadova analyses communicative culture as a complex personal formation that concentrates on the art of speech and listening, objective perception and proper understanding of the individual, contributes to the construction of humane relationships and the achievement of effective interaction based on common interests [27].

As a complex dynamic personal formation reflecting the socially conditioned level of development of the person, its readiness for communicative activity, the system of views and actions providing the satisfaction of needs of self-realization and a way of achieving goals in communication, fruitful benevolent interaction of people in various spheres of life as a component of communicative culture. A. Gavrylyuk
[9]. Continuing the analysis of the various above approaches to the disclosure of the essence of the studied concept, we note that L. Ponomarenko analyzes communicative culture in two meanings: first, as a set of material and spiritual values created by society and characterizing a certain level of its development, through which information is exchanged between systems in nature; secondly, as a semantic aspect of the interaction of the social under the degree of development of social and mental development of the individual, contributing to the achievement of social community while preserving the individuality of each of its elements [26].

The definition of the communicative culture of future engineers proposed by O. Kaverina defines the outlined notion as a process and result of engineering personality consciousness formation, reflecting inseparable unity between all knowledge areas, emotional-sensitive and value attitude to them (internal culture), as well as appropriate abilities, skills, interaction needs (external culture) with different communicative partners. Communicative culture is a system of internal resources necessary for building effective communication in various situations of personal interactions [19]. Considering communicative culture as a specific way of organizing communication, I. Zarubinskaya notes that communicative culture is characterized by the presence of a communicative ideal, a system of communicative norms and rules, the attitude to the interlocutor as a value, knowledge of his individual characteristics, and his own communicative abilities. The author considers communicative culture a system of internal resources necessary for building effective communication in a specific range of situations of interpersonal interaction [15].

In determining the essence of the phenomenon of communicative culture of the future specialist, its interpretation as a component of the future specialist’s professional culture, constituting a system of knowledge, norms, values and ways of behaviour accepted in society and the ability to organically, naturally and unconstrainedly implement emotional communication (I. Zyasiun) [17]; a condition and prerequisite for the effectiveness of professional activity and as a goal of professional self-improvement (E. Yashchenko) [33]; as a morally oriented means of communication that provides effective information exchange between people, mediates their interaction and mutual influence, allows interpersonal perception and mutual understanding (perception); it is more or less perfect readiness and ability of a person to communicate with others (O. Korniaka) [22].

So, from the analyzed definitions, we can conclude that communicative culture is a component of the professional culture of a future specialist; its main
characteristics are a set of communicative knowledge, skills, personality properties, ways and forms of its interaction that contribute to mutual understanding, practical communication tasks; it is the level of development of a person, her readiness for communicative activities, the system of views and actions that ensure the satisfaction of needs of self-realization and how to achieve. Thus, the communicative-cultural personality is characterized by certain individual communicative skills and qualities; its communicative interaction occurs in a certain communicative environment, and such a person is communicative-competent.

Studying the structure of the communicative culture of the individual, we found that there is still no consensus on the definition of its structural components. So, the analysis of psychological and pedagogical studies indicates that communicative culture has a particular structure, including hypothetically defined and experimentally tested components in each study. So, V. Sadova notes multidimensionality of the content of communicative culture, which, in turn, causes and multicomponent of its structure, which contains the following components: worldview (system of views, beliefs, knowledge and values of man, ethical and aesthetic standards); motivational (motives of communicative behaviour, communicative settings, professional orientation); proper communicative (communicative skills, culture and content of speech); emotional-volitional (empathy, tactfulness, composure, tolerance, sense of humour); constructive (adequate perception and self-esteem, communicative-reflexive abilities, ability to predict the development of relationships and interaction with other people) [27]. In particular, O. Kaverina notes that communicative culture can be considered an integral category containing several interrelated components: cognitive, value, activity, aesthetic, and emotional. The basis of the communicative culture of an individual is a system of intrapersonal resources necessary to ensure effective communicative action. The scientist notes that the communicative culture of the student of higher technical education includes three components: an appropriate level of professional knowledge (integral component), a necessary stock of practical abilities and skills (activity component), a level of change of personal qualities (value component) [19]. In turn, L. Ivanchenko suggests the structure of the communicative culture of a future engineer, in which it is possible to distinguish motivational-valuable, general cultural, mental and speech, and professional-technical components [18]. In her opinion, the motivational-valuable component stimulates the future engineer to communicative development and regulates his communicative behaviour. Thus, the general cultural component reflects the general culture of the personality,
which constitutes the communicative culture. General cultural development is based on general educational training under the State Educational Standard of Higher Professional Education. In turn, the mental and speech component manifests themselves in the unification of the formation of general characteristics of thinking and language. A future specialist’s mental and verbal improvement is based on introducing specialized textbooks for each speciality into the educational process. At the same time, the professional-technical component is quality as close as possible to the sphere of future engineer’s professional activity. Professional-technical development of a future specialist implies, first of all, mastering professional terminology.

Thus, the carried out theoretical analysis of psychological and pedagogical sources on the problem of determining the structural components of communicative culture allows us to conclude that mainly in the structure of communicative culture, there are: cognitive and operational spheres (knowledge, abilities, skills, professional personal qualities); needs and motivational sphere (orientation of personality, needs and interests, motives); behavioural-activational sphere (means of activity, its results). The content of certain structural components depends on the specific type of activity of a person and the specifics of the profession. The most indefinite and, hence, the most variable are professionally essential qualities of a personality. The definition of these qualities is usually based on the traditional qualification approach to the personality of a future specialist.

Thus, based on the analysis of various theoretical approaches to the structure of communicative culture (L. Ivanchenko, O. Kaverina, Ye. Mychk), we have identified the following main components of it: cognitive (completeness, strength and awareness of communicative knowledge that affect the effectiveness of social interaction), motivational and value (positive motivation to communicate, awareness of communication as one of the values in the system of values); activity-practical (communicative activity, communicative skills, social intelligence) and reflexive-self-regulatory (self-knowledge of the student’s mental acts, states, behaviour; understanding of the actions and behaviour of other participants in the interaction).

The proposed components allow us to consider communicative culture as a complex characteristic of personality, the content of which, as we noted above, is determined by the purpose and functions of professional activity and depending on the sphere of human activity and features of the profession varies meaningful content of its structural elements.
Schematically the structure of communicative culture of the personality of the student – the future engineer is presented by us on fig. 3.

Exploring the problem of the communicative culture of the individual, we noted that the analysis of its functions is less disclosed in scientific research. Therefore, summarizing the different approaches of scientists to the functional analysis of the phenomenon of communicative culture of the individual, we identified the following main functions: informative, perceptive, interactive, presentational, and developmental.

Consequently, a definitive analysis of communicative culture indicates the complexity of this concept and the lack of uniqueness in its definition and interpretation of the content, structure and functions; Communicative culture is the basis of the general culture of the individual, its basic component, which ensures the readiness of the individual for life self-determination, is a condition for achieving harmony with themselves and the surrounding reality. At the same time, this analysis showed that communicative culture, as an independent formation, is not sufficiently investigated in modern psychological and pedagogical science. First, the definition of the essence of communicative culture is mainly descriptive. Its formation is seen as a process of learning ethical rules of behaviour but not as implementing the individual’s communicative capabilities or developing its communicative abilities.

Under the communicative culture of the future specialist, we understand a
special quality of the personality, its position, which is manifested in the need to interact with other people, creativity and individuality, as well as characterized by a set of communicative knowledge, the formation of skills to control and regulate their language behaviour, competent and convincing ability to conduct business negotiations in the professional sphere, quickly navigate in a communicative situation and choose the necessary style of behaviour to achieve the goal of the communicative act, productively and kindly cooperate in the process of solving professional tasks (Fig. 4).

Thus, the communicative culture of a future specialist is considered to be an acquired ability of an individual, which should be formed and developed in the process of purposeful and systematic educational work in higher education.

7.2. The role of self-education in the formation of the communicative culture of a future specialist

A separate role in forming the communicative culture of future specialists is played by the self-educational activity of the applicant of education because without his subjectivity (motivation, aspiration, desire, need) and active participation in this process, the result will be insignificant.

In the context of the analysis of self-educational activity as an essential component of any professional activity are important, in our opinion, the pedagogical ideas of K. Ushinsky, V. Sukhomlinsky, among the main professional qualities especially highlighted teachability during the whole period of their activity.

The analysis of modern psychological and pedagogical research testifies to the complexity and multidimensionality of the concept of “self-education” that caused the presence of different approaches to its interpretation. So, self-education is considered: a type of cognitive activity (A. Gromtseva, N. Kosenko, P. Przybylski, N. Khmel, etc.); the process of cognition (B. Raysky); type of education (V. Okon, I. Kolesnikova); the form of acquisition and deepening knowledge (L. Borisova, N. Buhlova, O. Lebedeva, R. Skulsky); education obtained by independent work (S. Honcharenko); an integral part of self-education, improvement of personality (G. Kojaspirova); a form of continuous continuation of general and professional education (A. Eisenberg, M. Piskunov); a person’s readiness for independent creative mastery of knowledge, skills and abilities (S. Arkhangelsky and others).
Actual problems of self-education are reflected in the scientific works of M. Bondarenko, G. Kojaspirova, A. Malykhin, I. Naumchenko, M. Rogozina, N. Sydorchuk, N. Tereschenko, V. Shpak and others. The growing role of self-education in the information society is covered by A. Andreev, V. Korvyakov, V. Nadein, E. Polat, G. Serykov, M. Soldatenko, A. Shuklina and other scientists; the use of information technology as a means of self-education was considered by E. Ganin, Y. Kalugin.

H. Zborovsky defines *self-education* as a type of free activity of the individual, which is characterized by its free choice and orientation to meet the needs of socialization, self-actualization, and improvement of cultural, educational, professional and scientific levels [16]. In turn, A. Burluka interprets self-education as an information-supporting activity carried out through the acquisition (assimilation), accumulation, ordering, systematization and recovery of knowledge to meet the cognitive needs of the individual to implement various activities. According to the scientist, such activity is determined by socioeconomic factors, the nature and content of work, creative and intellectual potential of the individual. The motivating forces of self-education are professional labour, material, social and spiritual interests of an individual. The author notes that the process of self-education is the most complex type of educational activity, associated with self-reflection, self-assessment, self-identification and development of abilities and skills to acquire relevant knowledge and transform it into practical activity independently. Self-education is essential to
knowledge reproduction, change, and personal self-improvement in professional and non-professional spheres [5].

According to I. Sydorenko, self-education, in its modern interpretation as a psychological and pedagogical and social category, is perceived as a type of cognitive activity characterized by activity, independence, voluntariness and focus on improving the mental forces and abilities of the individual [28].

The concept of self-education is interpreted by several scientists (O. Eisenberg, I. Kolbasko, O. Malykhin, V. Rogozhkin) as a purposeful, independent work of the individual to improve his professional skills. This definition emphasizes that self-education as a phenomenon is a professional function of the individual, the implementation of which contributes to the professional adaptation, development and professional improvement of the specialist during his professional activity. The performance of this function is a condition and obligation of a specialist to acquire and improve his professional competence.

It should be noted that the concepts of “independent work” and “self-education” have different meanings, and their identification leads to confusion in the choice of means, forms and methods of their practical implementation. In our opinion, independent work should be understood only as an integral part of self-education. Self-work is a prerequisite for self-education, as defined by S. Honcharenko “self-education is an education that is obtained in the process of independent work without undergoing a systematic course of study in a stationary educational institution. In addition, self-education, an unknown part of systematic training in stationary institutions, contributes to the deepening, broadening and more solid assimilation of knowledge” [12, p. 296].

Constructive in the context of our study is the analysis of the interdependence of education and self-education processes. Thus, A. Klochko, in the study of this relationship, concluded that self-education is an informative process that contributes to the accumulation of knowledge, the development of mental strength and abilities, and the formation of intelligence. At the same time, education is the process and result of mastering systematic knowledge, skills and abilities to shape the worldview. The author notes that self-education is a component of mental self-education, which develops the qualities necessary for successful knowledge acquisition [21].

Based on the views of A. Klochko, the relationship between the concepts of education, mental self-education and self-education is presented in Fig. 5.
S. Vasylieva considers self-education a process of independent search and mastering certain knowledge, skills and abilities, continuous self-development and self-education. The author emphasizes that self-education is the process of harmonizing the needs of the individual and the capabilities of the individual in order to optimize its self-realization [6].

Even though researchers have different interpretations of the essence of self-education, the analysis of psychological and pedagogical literature on the problem under study allows us to assert that self-education is a motivated educational and cognitive activity of the individual aimed at the active independent acquisition of new knowledge, formation of skills and abilities necessary for the transition to a qualitatively new intellectual and professional level.

In the context of our study, it is important to analyse the essence of the concept of self-education in the formation of the communicative culture of the future engineer.

Self-education is a complex, multifunctional, continuous intellectual and volitional process aimed at the search, assimilation and practical application by a person, including a future specialist - engineer, of the necessary information, which is provided by several emotional, motivational, psychological, pedagogical and social factors. In other words, self-education is an internal personal activity aimed at self-development and self-improvement, including professional.

Because of this, under the self-education of future technical specialists, we understand conscious, systematic, independent activity within the educational process of higher technical education institutions and beyond, aimed at gaining new knowledge and forming professional skills and abilities, which are self-regulated by the individual and forms the basis of his professional development.
The effectiveness of this activity largely depends on the level of professional motivation of the future specialist, ensuring self-organization and self-control of their actions, awareness and objective assessment of their training and preparedness for the future profession.

As components of self-educational activity, scientists distinguish the following:

1) cognitive, which is determined by the primary culture of the individual, the availability of sufficient professional knowledge and skills to apply them;

2) motivational, which arises as a result of personal awareness of the importance of continuing education, professional development and broadening of horizons, the presence of stable cognitive interests, aspirations, attitudes, and a sense of duty;

3) procedural, which consists of developed skills of independent cognitive activity, formed operations of mental activity, skills of self-analysis;

4) organisational, which is the ability to choose the content, forms of its appropriation; plan their activities and time, self-control, self-esteem;

5) moral and volitional, based on personal characteristics: curiosity, criticality, and efficiency [5; 6].

The analysis of psychological and pedagogical literature shows that self-education is a necessary condition for students’ learning in the process of their professional education and performs some important functions:

1. Information and accumulative, that is, obtaining new information and acquiring new professional knowledge, which allows to expand professional worldview;

2. Liquidation and compensatory, which is manifested in the elimination of shortcomings and gaps in the student’s learning process;

3. Developmental and self-regulatory, which ensures the improvement of personal qualities, encourages future specialists to participate in creative work, provide support for creative self-realization;

4. Educational and methodological, which is related to overcoming the professional limitations of the student and methodological preparation for future professional activity;

5. Incentive and motivational, which prevents stagnation in professional development, provide the development of motivation for professional activity.

Interesting, in our opinion, is the approach to defining the functions of self-education by O. Burluky, which complements them with the following: the function of comprehensive general cultural development of the individual, satisfaction of...
moral, intellectual, aesthetic, artistic and other spiritual needs that make up the personal potential. Self-education can spiritually enrich human life and make it more prosperous, meaningful, engaging, bright and creative. The author also emphasizes the compensatory function of self-education, which ensures the alignment of the primary education as such or its fragments that were not received for some reason. According to O. Burluka, this function reflects a person’s desire and ability to restore and make up for gaps in education through self-education. On the one hand, it brings knowledge to the level of socially and professionally necessary competence. On the other hand, it is associated with equalizing the education of some social groups and strata with others. According to the scientist, it is the compensatory function of self-education that makes it possible to sublimate the creative potential of the individual, to find a way out and application not only in professional and labour activity but also in other spheres (socio-political, scientific, cognitive, leisure, etc.) of life [5].

Thus, self-education of the future specialist should be defined as an integrative activity that includes:

1) self-esteem - the ability to assess their capabilities;
2) self-accounting - the ability to take into account the presence of their qualities;
3) self-determination - the ability to choose one’s place in life, and society, to realize one’s interests;
4) self-organization - the ability to find a source of knowledge and adequate forms of self-education, to plan, and organize a workplace and activities;
5) self-realization - the realization by a person of his/her capabilities;
6) self-criticism - the ability to critically evaluate the advantages and disadvantages of one’s work;
7) self-control - the ability to control one’s activity;
8) self-development - the result of self-education.

In our opinion, without such self-educational activities, the result of the formation of the communicative culture of the future specialist is impossible.

Based on the analysis of scientific works (O. Burluk, G. Kojaspirova, O. Malykhin), we also concluded that the successful self-education of students - future technical specialists is provided under certain conditions. First, the choice of educational material should be scientifically grounded, and students should be aware of the importance of certain educational information. It is also vital that students have an appropriate level of ability to independently determine the goals specified in the
tasks and their implementation throughout the learning process. Thus, the institution of higher technical education should have such self-organization of the educational process, which would provide:

a) independent programming of the learning process;
b) choice of forms of self-education;
c) mastering the methods of independent knowledge acquisition;
d) self-assessment of intermediate and final results of their learning activities, self-control;
e) development of self-improvement program.

Thus, summarizing the essence of the concept of communicative culture, its structure and functions, the role and importance in the professional training of future specialists, as well as the essential interpretation of self-education, we found that it is the self-educational activity of higher technical education students that is a regulator and effective motivator of the formation of their communicative culture, which in turn is a complex and holistic process (Fig. 5) with clearly defined principles and methodological approaches.

At the centre of this process is the student’s personality (professional knowledge, skills, needs and aspirations, level of self-educational activity, values, and worldview), which determines the success and effectiveness of forming communicative culture.

In other words, the integrity and effectiveness of the system of forming the personality’s communicative culture depend on the future applicant’s subjectivity to higher technical education and his self-educational activity.

7.3. Features of the formation of the communicative culture of a future engineers

Revealing the role of self-educational activity in forming the communicative culture of the future technical specialist, it is essential, in our opinion, to analyse the specific features of the implementation of this process. As we have already mentioned above, the process of forming the communicative culture of the personality is systematic, holistic, complex, and purposeful, in the centre of which is (actively lives) the student’s personality. This determines the specifics of the implementation of the studied process. The point is that the formation of the
communicative culture of the future specialist’s personality depends: a) on the individual psycho-physiological characteristics of a person, b) on his/her age, c) social status, and d) specifics of professional activity.

Fig. 6 - Formation of the communicative culture as a system

Since we analyze the peculiarities of the formation of communicative culture of future specialists, that is, students, we will focus on the analysis of those specific features and factors that contribute to the formation of their communicative culture. First of all, we note that today there is no holistic and general theory of the formation of communicative culture of the individual in the student age. Research is mainly focused on the mechanisms and ways of forming individual components of the phenomenon under study. It is about the development of communicative skills, the importance of communication as an active activity of the personality, in general, is
emphasized; the mechanisms of formation of individual communicative qualities and characteristics of the personality that make up the content of the personal component of communicative culture are considered.

We consider the specifics of the formation of the communicative culture of the personality of the applicant for education - a person who is at the stage of adolescence (age period), is a student (as a special social group) and is preparing for future professional technical activities (the relevant educational development environment of the HEI).

In the course of the study, we found out that the youth age period is defined as a particular qualitatively peculiar stage of ontogenetic development, which is characterized by living conditions, education and upbringing, patterns of organism formation, and has a specific historical origin. Accordingly, essential features of any age period are the social situation of development, the leading type of activity, and neoplasms in the sphere of consciousness. The concept of the social situation of development in age psychology reveals the place of a person in the system of social relations, namely: social, political, economic, cultural and other objective conditions of personality development, social status of age in society, its historical, cultural and chronological characteristics and social roles that realize the general social position of the individual through the system of his/her relations, experiences, attitudes, perception of the reference group. That is, the social situation of development is specific for each age period system of relations of the individual in social reality, which is reflected in a person’s consciousness and has an implementation in activity and communication [4].

One of the essential points of the social situation of youth development is the official recognition of adulthood of young people. However, the essence of the social situation of development in adolescence is optimal personal and professional self-determination. In this context, psychologists call young men “people looking to the future”, as they are already facing difficult questions: “Who am I?”, “What am I like?”, “What can I do?”, on the answers to which the future adult life directly depends. Scientists characterize youth as a period of “self-discovery”, awareness of one’s inner world, psychological qualities and capabilities, oneself and everything around. That is, youth realizes, comprehends and evaluates from the point of view of the prospects of further independent life, manifested in communication and relationships with elders and peers, in attitude to learning [4; 17]. The leading trend in the communication and relationships of youth with elders is the completion of
emancipation from adults in the childhood and adolescent role and, at the same time, entering the socio-cultural world of adults as independent personalities. Communication and relationships of boys and girls with peers are very diverse in form and content. Thus, the main trends in the communication of modern youth are the breadth and diversity of communication and contacts with peers: from numerous “noisy” friendly companies to narrow, usually paired, intimate-personal relations. Under these conditions, the first of them is associated mainly with the so-called “spectacular communication”, characterized by certain negative psychological and socio-cultural features, but with this approach quite common in the modern youth environment. The second of these relationships is aimed at finding a person with whom relationships can be built at the level of maximum trust, “confession”, the level of friendship and mutual understanding; the emergence of first love and sexual affection; youth subculture, which is the unity of what and how youth perceives and assimilates from the cultural heritage of past generations, and the new that each young generation creates independently (attitude to literature, theatre, cinema, musical tastes, youth fashion and youth slang) [22; 24].

Thus, the specificity of the social situation of personality development in adolescence, which consists of the need for life self-determination and directly affects communication and relationships with other people, determines the next essential feature of the age period – the leading type of activity characterized by special functions in the process of psychological development and formation of human personality (O. Leontiev), namely: a) it is an activity within the framework of which the essential psychological formations characteristic of a certain age period arise; b) it is an activity in the course of which other activities are carried out and developed, including those that will serve as a leading activity in the future; c) it is an activity, the replacement of which by another type of leading activity means a transition from one age period to another. The leading activity for young people again becomes educational activity, but at a qualitatively different level, turning into educational and professional activity, which is an educational activity in the new conditions of the social situation of development, with a focus on the future, and first of all – on the acquisition of the chosen profession [4]. In the educational and professional activities of boys and girls, the nature of learning motivation changes. Thus, among the motives are the leading motives of self-development, self-affirmation and cognitive interests. The peculiarity of such activity in adolescence is also the improvement of learning actions, which primarily concerns the actions of goal setting, control and
evaluation. That is, young people, begin to master independent learning activities and learn to learn independently. Another important feature of educational and professional activity in adolescence is its influence on the nature of communication with teachers and relations with them, manifested in a significant increase in the requirements for their professionalism, scientific and methodological level [4]. Thus, for young men and women who have decided on the need to master a particular profession, the leading activity is an educational and professional activity, which significantly changes the awareness of the purpose of learning, learning motivation, learning activities and the nature of relationships with teachers. It is this activity, as any leading activity, that becomes a decisive (however, not the only) factor in the formation of the central psychological formations of adolescence.

Thus, one of the features of the formation of the communicative culture of youth is to take into account the leading activity, social situation and trends of communication in youth.

According to the analysis of the psychological and pedagogical sources, there is no consensus in psychology on the essence of neoplasms in the individual’s consciousness in adolescence. However, psychologists (V. Dolinskaya, E. Erikson, I. Kohn) are unanimous in the opinion that the most important formation of consciousness at this age is the readiness for optimal personal and professional self-determination, which is an integrative formation and primarily involves the development of self-awareness and the formation of worldview and worldview culture as a system of beliefs. E. Erikson considers the most important phenomenon of psychological development in the period of adolescence and youth to be the formation of personality identity [32] as a psychosocial identity that allows the individual to realize himself in all the richness of his relationship to the world around him and determines the system of values, ideals, life plans, social roles of the individual with appropriate forms of behaviour.

As we have found out, along with the acquisition of social maturity in adolescence, there is the high flexibility of social roles – representatives of this age period adapt to people of different statuses, gender and age. Thus, the need for the formation of communicative culture arises in the process of human life and is one of the essential needs of personal development. Consequently, it is associated with the internal mechanisms of self-knowledge, self-improvement and self-regulation of the personality and, accordingly, its satisfaction and ensures the harmonious functioning of a person in society and its constructive interaction with others.
Thus, we can state that in the period of youth, there is an intensive formation:

- self-consciousness as a holistic view of oneself, emotional attitude to one’s own “I”, the self-esteem of one’s appearance, behaviour, mental, volitional, moral qualities, awareness of one’s positive and negative traits, based on which there are motives for personal improvement and self-education;

- worldview as an integrated, holistic system of views, knowledge, values, and ideals based on previously acquired worldview knowledge and the ability to abstract-theoretical thinking and cognition of the surrounding reality;

- individuality, which is manifested in the creation of their theories of the meaning of life, love, and happiness.

At this age, the problem of personal self-expression becomes urgent, which is, on the one hand, a way of manifesting one’s own “I”, and on the other hand, a condition for the harmonious development of the personality. Therefore, youth is a crucial stage in the formation of communicative culture because it is in adolescence that cognitive and emotional-personal prerequisites for its formation mature.

The optimal status of youth representatives is the student. Under successful adaptation to studying at a higher education institution and the right choice of future profession, young students receive general and vocational education, develop their intellect, and accumulate communication experience.

In pedagogical science, students are considered a special social category, a specific community of people organizationally united by studying in a higher educational institution. The peculiarities of the student period of human life, which are directly related to the communicative culture of the individual and influence the process of its formation, according to our conclusion, are as follows:

- active formation of self-awareness, worldview and attempts to assert their independence;

- completion of the formation of a stable image of personality, own “I”;

- development of a general life plan;

- development of self-respect as a generalized attitude to oneself;

- mastering the individual style of activity; mastering the complex social roles of an adult; strengthening the conscious motives of behaviour;

- the ability to critical reasoning; assertion of own identity;

- independence in determining ways and means of solving problem tasks;

- high cognitive motivation and ability to interact [4; 29; 30].

For students, the leading type of activity is educational and professional. Unlike
similar activities of high school students, it is not preparation for the chosen profession but a purposeful process of mastering professionally essential knowledge, skills and abilities, it is already mastering the profession and future employment. Indeed, according to the results of our study, during the study at a higher education institution, a solid foundation of labour and professional activity is formed. Hence, the knowledge, skills and abilities acquired in training are no longer a subject of educational activity but a means of professional activity. Thus, students’ educational and professional activity is a specific activity that combines the features of educational and work activities. In the educational and professional activity, the student’s personality as a subject of educational activity is developed and revealed. In this context, researchers propose to consider the student as a person of a certain age and as a personality in three aspects: 1) psychological, which is the unity of mental processes, states and properties of the personality; 2) social, which embodies social relations, qualities generated by the student’s belonging to a particular social group, nationality; 3) biological, which includes mainly hereditary properties: the type of higher nervous activity, unconditional reflexes, physical strength. [29].

Using an integrated approach to studying the student’s personality, we have formulated general conclusions about the essential psychological formations that arise in students’ studies in higher education. So, first of all, it is a period of active development of moral and aesthetic feelings, formation of worldview culture, professionalism, formation and stabilization of character and, most importantly, mastering a complete set of social roles of an adult: civil, professional and labour.

During student years, the inclusion of a young person in an independent professional activity begins, his/her work biography emerges, and their own families are created; often at this age, students achieve certain successes in various activities: sports, artistic and aesthetic, scientific research.

According to the results of our research, student age is characterized by the fact that intellectual skills and physical strength develop during this period. However, often there are contradictions between these opportunities and their actual implementation. The growing creative capabilities, and the development of intellectual and physical strength, accompanied by the blossoming of external attractiveness, hide the illusion that this growth will last “forever”, that the best life is still ahead, and that everything can be achieved. Moreover, this, in turn, can lead to arrogance, ignoring the opinions of others, to conflicts. In this case, the level of formation of communicative culture as the highest level of human ability to
constructively interact with others, their understanding and mutual influence is relevant. Therefore, in our opinion, it is important to emphasize that it is the student years that are favourable in the formation of the communicative culture of the individual as a period of transformation of motivation, the whole system of value orientations, on the one hand, and the intensive formation of special abilities in connection with professionalisation – on the other.

Thus, the formation of the student’s personality as a subject of relations is necessary and involves the assimilation of communicative culture since adolescence is sensitive to developing and establishing this personal formation.

As we have already noted, communicative culture is a multidimensional phenomenon of interpersonal interaction of people, which involves the establishment and development of contacts, exchange of information, mutual understanding and mutual influence of the subjects of communication on each other. In general, such a culture is a consolidating element, a regulator of behaviour, a guarantor of the respectful attitude of a person to others, understanding, tolerance and mutual respect. Thus, it serves as one mechanism for harmonising personal and public interests. By communicating with each other, future specialists, regardless of professional orientation, gain experience in interpersonal interaction, enrich themselves with information, develop intellectually, and strive for professional growth and personal development. Because of this, the decisive in the education of students’ communicative culture is to strengthen the moral foundations: respect for people, goodwill, tolerance, sensitivity, modesty, and self-esteem. Politeness and tact as stable personality traits, an acquaintance of students with social norms of behaviour, and the development of the habit of observing these norms are one of the specific tasks of forming a communicative culture.

In the context of our study, it is relevant to clarify the specifics of forming students’ communicative culture in higher technical education. Thus, revealing the specifics of the formation of communicative culture in a higher technical educational institution, O. Kaverina argues that a higher technical educational institution should be a centre of culture, a centre of humanistic knowledge and moral education. This can be achieved by forming a specific humanitarian environment in higher technical educational institutions, which has a decisive influence on the development of a personality aware of the meaning of its activities and purpose. The main goal and purpose of higher technical education in the modern humanitarian paradigm is to comprehend a person’s place in the world and to master the ways of interaction with
Professional training should be combined with the formation of the humanitarian culture of students, with the establishment of humanistic priorities in mind [19].

Thus, in our opinion, it is erroneous to think that students of higher technical education institutions – future specialists in engineering and technical direction do not need a communicative culture because they will work in the system “man – machine”. Denying such judgments, scientists identify social, professional and psychological qualities that every modern competitive specialist should have. Thus, in particular, social qualities include:

- mastering the norms of professional communication and ethical standards of the profession;
- orientation of professional results for the benefit of other people and society; ability to cooperate, quickly establish contact, and psychologically influence other people (facilitation);
- flexibility of thinking and compatibility, tolerance in interpersonal relations, ability to listen and persuade, argue their own opinion, present their ideas, and admit their own mistakes.

The professional qualities primarily include:

- conscious understanding of the mission and purpose of the profession,
- mastering the norms of professional activity,
- professional consciousness and professional thinking,
- forecasting of results.

The psychological qualities of a specialist are stable professional motivation, a positive self-concept, versatility, creativity and creativity, individuality in professional work, and satisfaction with professional work. [4; 23; 29].

The success of future engineers is largely determined not only by the acquired professional knowledge but also by the high level of formation of their readiness for professional communication in the process of professional training, the level of formation of communicative culture, since the above social, professional and psychological qualities of a specialist are interdependent, complementary indicators.

Therefore, the next feature of the formation of the student’s communicative culture is to take into account the specifics of the educational process of the higher education institution since the formation of the communicative culture of the future specialist is a multifaceted, long-term and interdependent process, the effective organization of which depends on many factors: subjective (psychological factors of various kinds, personal qualities, confident communication skills) and objective
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(related to the organization of the educational process within the higher education institution, due to the development of general education).

Features of the formation of communicative culture in the communicative space indicate its binary possibilities. On the one hand, the future specialist models communicative activity, intergroup and interpersonal interaction and implements the design capabilities of communicative culture, being its carrier, on the other hand, forms and develops a personality with a humanistic orientation and constructive attitude, which has a common spiritual culture. This gives creativity the basis for the formation and enrichment of the communicative culture of a specialist. Reflective management of the process of communicative culture formation impacts this process and brings it closer to the goal.

Analysing the approaches to the formation of students’ readiness for professional communication as a result of the formation of their communicative culture, O. Kaverina determines the need to use the professional-activity approach, which aims to bring together educational activities and future profession; culturological approach, based on the need for a holistic perception of culture and combines many subject areas; synergetic approach, in the context of which the integration of knowledge is based on the revival of natural, objectively acting links between the elements of the educational material; problematic approach, which involves structuring the content of humanitarian material and is based on the principles of science and development, which ensures the developmental nature of learning (for example, the integrative thinking of future engineers); system analysis is used to reveal the integrity of the process of forming the communicative culture of the student’s personality [19].

We focus on the following approaches in the formation of communicative culture of future specialists: systemic, communicative, personality-oriented, humanistic, activity and competence. The basic principles of the formation of the communicative culture of the future specialist are defined as follows: - the principle of the ethical and anthropological orientation of the process of forming a communicative culture, the implementation of which involves focusing on such guidelines as the development of a specialist as a holistic, harmonious personality; reorientation of consciousness towards the activation of his communicative activity; assimilation of the system of values that need to be embodied by a specialist in his form of professional being. This makes it possible to assert that the communicative culture of a specialist cannot be imagined without a person and his general culture
and ethics; - the principle of the innovative and methodological orientation of training of a specialist and his communicative activity, which reflects firstly, the integral nature of the construction of the process of forming a communicative culture; secondly, the specific forms of its construction; thirdly, it determines the ways and means of activating the creative potential of the future specialist; - the principle of reflection of the communicative culture of professional formation of a specialist, the implementation of which in the process of forming a communicative culture contributes to the development of the need for personal self-improvement (Fig. 6).

An important condition for the formation of the communicative culture of the individual is also the observance of the principle of dialogic in pedagogical interaction, which implies that spiritual and value orientation is carried out in the process of such interaction between the teacher and the student, the content of which is the exchange of values (intellectual, emotional, social), as well as the joint production of values.
Conclusions

Thus, we consider the personality of a future specialist not only as a carrier of knowledge, skills, skills of professional activity but also as a carrier of a complex, dynamic complex of individual and personal qualities, which together, in the practice of public life, is formed into a holistic model of the perception of the world by a young specialist. An essential component of this model is the communicative culture, which is formed based on personal, motivational components, the manifestation of the general culture of the personality during various types of communication, communicative knowledge, and formed communicative skills.

In our opinion, the role of self-education in forming students’ communicative culture is determined by the continuity of this process, the expediency of flexible adaptation to social conditions, the general social situation of society and the professional environment. This actualizes the developmental impact on one’s personality since the peculiarity of self-education and self-education is that it is based on the individual characteristics of a person, his or her inclinations, interests and needs. Therefore, the formation of communicative activity, social responsibility, tolerance, and altruism under the condition of purposeful pedagogical activity in higher education contributes to the formation of the individual’s sociality and social intelligence. It is sociality as the ability to interact with other people, as we found out in the study, is most effectively formed in the educational environment of higher education, as there is an opportunity to perform all the functions of future professional activity.