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# PSYCHOLOGY OF SOFT SKILLS OF THE FUTURE SPECIALIST

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Рецензенти: завідувач кафедри психології Сумського державного педагогічного університету імені А. С. Макаренка, д-р психол. наук, професор *С. Б. Кузікова*; завідувач кафедри педагогіки та психології управління соціальними системами імені акад. І. А. Зязюна Національного технічного університету "Харківський політехнічний інститут", д-р психол. наук, професор *Н. В. Підбуцька*; професор кафедри психології Харківського національного педагогічного університету імені Г. Сковороди, д-р психол. наук, професор *К. І. Фоменко.*

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The psychological foundations of soft skills as essential competences for future specialists in a rapidly evolving labor market have been explored. Key soft skills such as communication, leadership, adaptability, teamwork and creativity have been analyzed with emphasis on their role in professional success. Special attention is given to psychological assessment methods and strategies for fostering these skills. The findings contribute to a better understanding of how soft skills enhance employability, career growth, and social adaptation, providing practical recommendations for education and professional development.

For scientists, professors, students of all levels of higher education, specialists, psychologists-practitioners who study the development of soft skills in modern professional activity.

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# Contents

# Introduction

The requirements of modern society, rapid development of technology, and growing competition in the labour market determine the insufficiency of professional competence and abilities for a successful professional. Soft skills are becoming increasingly important, as they are a set of personal qualities and skills that facilitate effective interaction with colleagues and clients, as well as adaptation to changes and solving complex problems.

The modern labour market has high standards and requirements for higher education institutions that train future specialists in a particular professional field, due to the high level of need for employees who organically combine highly specialised knowledge (subject competences, hard skills) with universal qualities, abilities, skills (general competences, or soft skills) that ensure productivity and efficiency of the business, whether it is educational, business, industrial, entrepreneurial or other activities. In this binary opposition, hard skills are a system of acquired professional knowledge and developed professional skills, while soft skills are flexible skills of a specialist that are more general (universal) in nature and relate to the scope of his or her personal resources to be successful and productive in the profession. These concepts are especially important in the digital age, when knowledge and skills are not a static resource but evolve and are updated, so professional competence is also in flux: the knowledge gained in the process of obtaining higher education is no longer enough, it is important to replenish it in sync with time trends and scientific development.

Soft skills make it possible to operate effectively in our new and ever-changing world, being the parameters by which modern companies are already looking for staff, and are not only related to knowledge and technical skills, but also determine success in the social and professional environment. Communication skills, leadership, creativity, emotional intelligence and other soft skills are an integral part of professional training and a key to successful employment in the future. Sources of replenishing this knowledge and skills include reading publications on theoretical issues, participation in scientific and practical conferences, seminars, webinars, podcasts, internships, exchange of experience, professional communication, etc. Therefore, a specialist must be dynamic, flexible, and responsive to the challenges of the times to maintain his or her professional potential and relevant competences.

Scientists believe that soft (universal, transversal) skills are formed in the process of education, so the Ministry of Education and Science of Ukraine recommends that soft skills strategies be incorporated into school subject

programs, educational and professional programs of higher education institutions, programs of general and professional disciplines, classroom and extracurricular work with students of all levels, which will facilitate the organic integration of graduates into the professional space and career success.

In response to the urgent need to develop higher education students' soft skills, Ukrainian universities have developed and implemented in the educational process the Regulations on the Development of Students' Soft Skills in the Educational Process as strategic guidelines that are consistent with the Laws of Ukraine "On Education", "On Higher Education", the current Licensing Conditions for the conduct of educational activities of higher education institutions, and the Standards and Recommendations for Quality Assurance in the European Higher Education Area ESG, with the Guidelines for Experts of the National Agency on the application of the criteria for assessing the quality of an educational program, as well as the recommendations of the World Economic Forum in Davos.

Thus, the relevance of the presented study has led to the definition of its purpose, which is to conceptualise, operationalise, define the educational and professional specifics and psychological and pedagogical conditions for the development of soft skills of future specialists and is determined by the contradictions between:

- the fact that in-depth knowledge in a particular field is not sufficient for efficient production and service delivery and the need of the modern economy for highly qualified specialists;
- growing demand from employers for high development of soft skills of candidates and insufficient development of rapid diagnostics tools in the recruitment process;
- automation of many routine tasks, which requires a higher level of creativity, flexibility and self-learning ability from employees and insufficient development of these qualities of future specialists;
- recognition in psychological practice of the positive role of soft skills in the adaptation of young professionals in the workplace, achieving success in teamwork, solving complex problems and adapting to change, and the lack of effective means of psychological support for their development.

The presented study does not exhaust all the issues related to the psychological specificity of future specialists' soft skills, but provides reasoned answers to the questions of conceptualisation of communicative and metacognitive flexible skills, methods of their psychodiagnostics and development in future specialists in the process of professional training in higher education institutions.

# Chapter 1. Theoretical substantiation of the problem of a technical profile specialist soft skills

## 1.1. The problem of soft skills in psychology

In today's conditions of extreme competition, special efforts are being made by higher education to develop and improve the competence of a specialist's personality. In this process, the so-called soft skills play a significant role. The term of soft skills is used to refer to all competences that are not directly related to a specific task (M. Cinque) [56]. This research examines the theoretical positions of the leading concepts of soft skills, describes their characteristics and importance in the technical field.

The most well-known and simplest definition of soft skills was given by Nobel laureate James Heckman: "Soft skills determine success in life". He showed a causal relationship between soft skills and personal and professional success in life (cited by M. Cinque) [56]. In addition, among a significant number of various abilities, qualities, capabilities of a person, these are soft skills that provide career development in the context of earning money and recognition (T. Chaudhari) [65].

Soft skills are a set of non-specialized skills that are important for career and responsible for successful participation in the work process and high productivity; they are cross-cutting, i.e. not related to a specific subject area (T. Smagina) [33], providing a combination of social skills, communication skills, character and personality traits, attitudes, career attributes, social and emotional intelligence, general intelligence, which allow people to navigate in their environment, work with others, be successful in leading activities, achieve set goals, supplementing hard skills (cited by S. Vasanthakumari) [73].

Soft skills often mean related or synonymous terms, in particular: life skills, transversal skills, cross competences, generic competences, key competences for a successful life and a well-functioning society, key competences for lifelong learning, 21st century skills, transferable skills, future work skills, skills for talent, skills for social progress (M. Cinque) [56], employability skills, core skills, necessary skills, workplace know-how skills, essential skills (D. Škuškovnika) [72]. All these terms reflect the purpose of

soft skills in a human life and emphasize their importance in professional growth.

Traditionally, soft skills include people skills or interpersonal skills (T. Chaudhari) [65]. These skills determine people's attitude to something and the way they interact with others and complement hard skills, that is, purely professional abilities. As noted by O. Povstin and M. Kozyar [47], there is no fixed list, just like the classification of soft skills, but after the analysis of various sources, the authors' list included leadership qualities, teamwork skills, the ability to teach, the ability to negotiate and resolve conflicts, the ability to set and achieve goals, to manage personal time and the time of subordinates, purposefulness, presentation skills, public speaking, effective communication skills, stress resistance, creativity, etc. "Soft skills" is a term that is often associated with a person's emotional intelligence quotient, a group of personal traits, social attractiveness, communication, language, personal habits, friendliness, people management, leadership and other features that characterize relationships with other people.

T. Polonska [48] outlined a comparison of two lists of soft skills presented at the forums in Davos: the first list was targeted for 2020, the second one – for 2025. While in the past the desired skills for education and development were such skills (in order of importance) as solving complex problems, critical thinking, creativity, people management, interaction with others, emotional intelligence, evaluation and decision making, service orientation, negotiation skills and cognitive flexibility, at the forum this list was supplemented by such skills as analytical thinking and innovativeness, active learning and learning strategies, originality and initiative, leadership and social impact, the use of technology monitoring and control, technology creation and programming, endurance, stress resistance and flexibility, logical reasoning, problem solving and idea generation.

Thus, the list of soft skills is not stable in terms of content and quantity, as new challenges of modernity always make adjustments to the list of the most urgent qualities and abilities that can complement the professional competence of a specialist.

According to the SOAR approach, described in the research of A. Kumar [63], soft skills include the following components: **s**elf – awareness of the characteristics that determine the identity of a person and his/her ideal self; **o**pportunity – awareness of existing opportunities, which involve the analysis of relevant requirements and rewards; **a**spirations – the ability to

make realistic choices and plan activities based on relevant information and self-regulation; **r**esults – the ability to review results, plans, make decisions, make claims, especially at transition points.

The characteristics of soft skills are their dependence on the specifics of the subject, applied nature and connection with readiness for employment, the capability of mastering them throughout life, emphasis on the ability to learn, and the use of reflective practice (Introduction to soft skills). Soft skills are necessary in both everyday life and in the profession, and the scope of application of soft skills is not limited by one profession (D. Appleby) [64].

Communication skills are considered as an opportunity to build and expand business relationships (D. Guglielmi) [59]. Interpersonal skills contribute to more effective employment and personal happiness (M. Cinque) [56], mastery of professional roles, as well as flexibility and influence (R. Ferragina) [58].

Soft skills include: coachability, emotional intelligence, motivation and even temperament (S. Engelberg) [57], communication skills, verbal competence, behavioral skills, including etiquette, self-respect and respect for other cultures, conversational skills, public speaking skills, time management skills, media activity skills, leadership skills, self-presentation skills, skills of positive attitude to reality, volitional skills to master new skills, teamwork skills, self-confidence as a skill (T. Chaudhari) [65].

N. Stepanova [35] identified ten main skills that people will need in the future according to the experts of Global Education Futures: skills of attention and concentration management, creative thinking, logic, spatial thinking and imagination, skills of work with information, self-organization and time-management, emotional intelligence, intercultural communication, ability to learn, unlearn and relearn, critical thinking.

There are many classifications of soft skills. In general, all professional skills can be conventionally divided into entrepreneurial skills (purely soft skills) and technological skills (hard skills). Entrepreneurial skills are related to leadership skills, willingness to take risks, innovation and change management. Technological skills are those that enable people to perform specific tasks (C. Ciappei) [55].

In addition, soft skills are divided into practical and physical ones, which are required to use and manipulate materials and tools, to use devices for obtaining new information and mastering communication technologies; cognitive and metacognitive skills, which are regarded as thinking strategies

that allow you to use of language, numbers, thoughts, acquired knowledge and include skills of verbal and non-verbal thinking as well as higher forms of thinking such as critical thinking, creative thinking, the ability to learn and aptitude to cognitive self-regulation, the ability to recognize your knowledge, skills, attitudes and values; social and emotional skills, which involve specific abilities that can be revealed in understanding thoughts, feelings and behaviour of other people, the ability to develop your relationships at home, at school, at work and in the community and to fulfil your civic responsibilities and embrace empathy, self-efficacy, responsibility and cooperation [63].

In the integrated taxonomy of skills proposed by C. Ciappei [55], soft skills are organized in two clusters: political and ethical skills – strategic and organizational skills, while the third cluster covers hard skills: managerial and technological skills. Political and ethical skills allow a person to interpret the professional reality, determine the strategy and organization of professional activities, plan, manage and coordinate activities (Fig. 1.1).

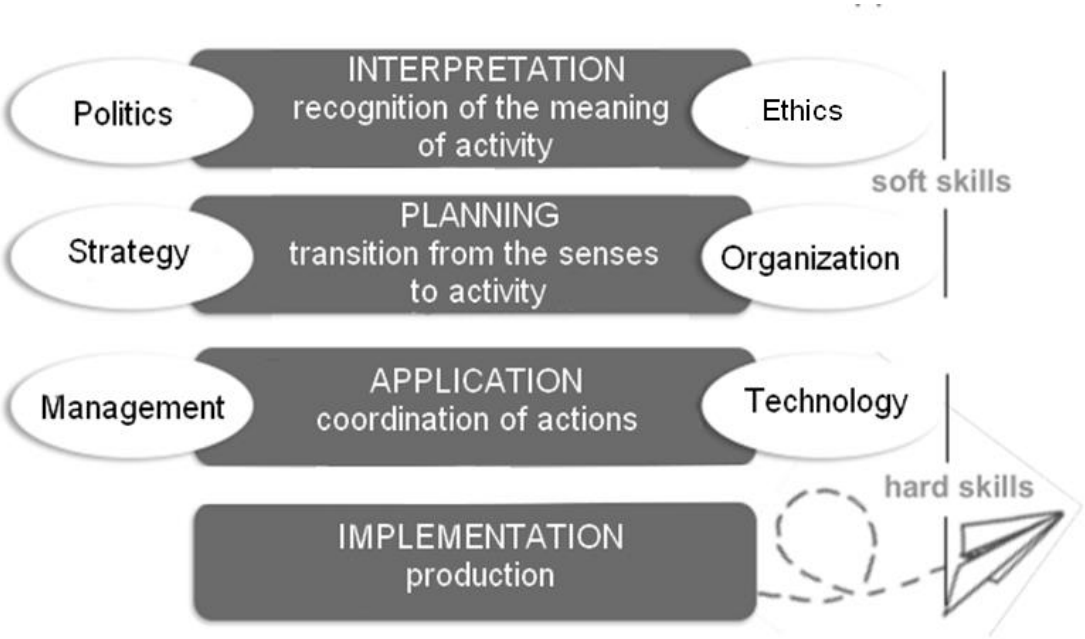


Fig. 1.1. **K. Chiape's taxonomy of skills in the professional activity**

There are numerous classifications of soft skills. According to their psychological content, soft skills are divided into: a) behavioural (knowledge of body language, that is, non-verbal competence, communication skills, self-confidence); b) general (common for any professional activity, for example, discipline); c) trans-situational (common for any situation of professional

activity, for example, stress resistance); d) non-technical (those that do not involve the use of equipment and software, for example, the ability to count in columns, knowledge of the multiplication table, etc.); e) non-measurable (those that cannot be assessed, measured by any psychodiagnostic instrument) (T. Chaudhari) [65].

In general, soft skills can be divided into intrinsic and extrinsic (S. Engelberg) [57], and more precisely, into 1) self-oriented/intrapsychic soft skills and 2) oriented to others/interpersonal skills. The first category relates to what a person should understand and develop in themselves, while the second category includes those qualities and abilities that a person can develop and apply to other people.

Therefore, the first group – personal skills – mainly corresponds to cognitive skills, such as awareness and thinking skills (the ability to develop information, to analyse, the ability to make critical judgments), while social skills relate to relationships with other people (communication skills, the ability to be interviewed, to conduct negotiations, to be socially active in networks, to solve problems, to make decisions, to be persistent) (S. Engelberg) [57].

The classification proposed by B. Kingsley [62], that is based on the theory of D. Gouelman, deserves special attention (Fig. 1.2).

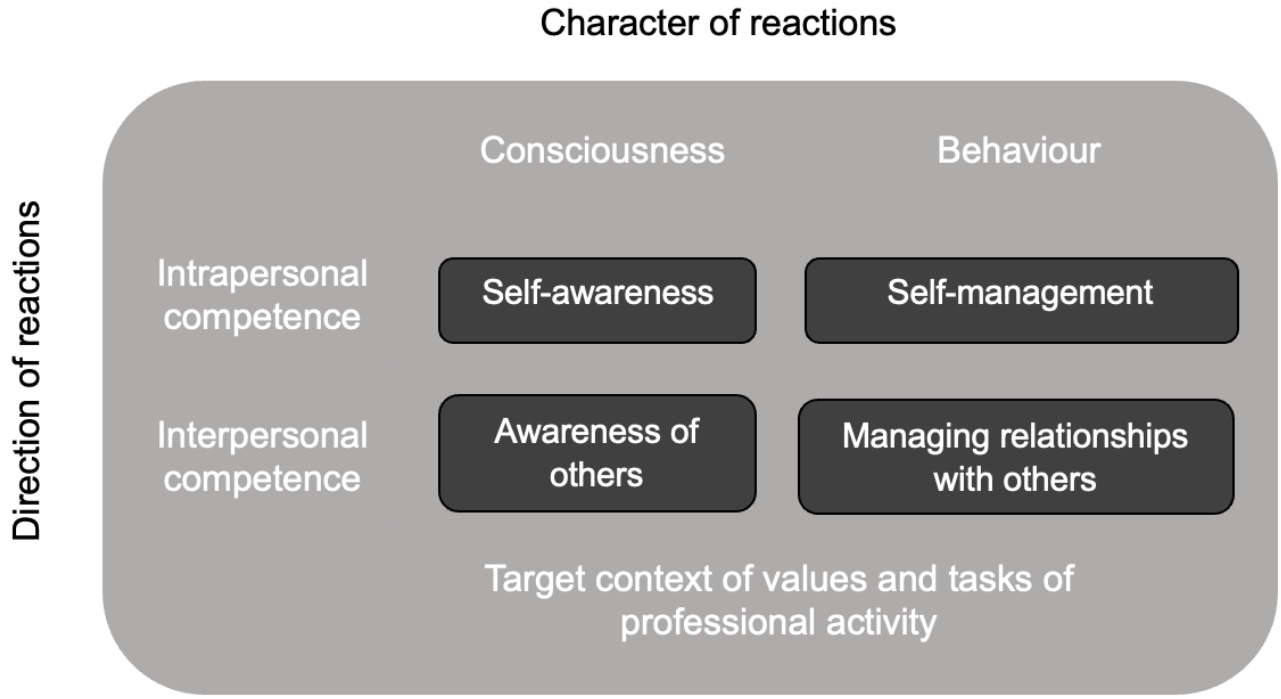


Fig. 1.2. **B. Kingsley's classification of soft skills**

Taking into account the two parameters "intrapersonal – interpersonal" and "belonging to the characteristics of consciousness – belonging to the characteristics of behaviour", the author defined four groups of soft skills: self-awareness and self-management, awareness of others and management of relationships with others.

According to the concept of K. Canney and E. Byrne [54] 1) basic skills include those that are used for the major social interaction and communication, in particular, the ability to maintain eye contact, choose the optimal space and distance for communication, understand non-verbal manifestations – gestures and facial expressions; 2) interaction skills, which are required for interaction with others, include the ability to resolve conflicts, change the position in communication, start and end a conversation, determine appropriate topics for conversation, communicate with authoritative people; 3) emotional skills (affective skills), necessary for understanding oneself and others, include skills in identifying one's own emotions and the emotions of others, demonstrating empathy, recognizing body language and facial expressions, identifying people who can be trusted; 4) cognitive skills needed to support more complex social relationships include the ability for social perception, decision-making, self-monitoring, understanding communicative norms, and determining appropriate behaviour for various social situations.

S. Vasanthakumari gives a detailed classification of communicative soft skills, dividing them into two groups: 1) skills of verbal communication which include knowledge of language and grammar, adequacy of speech speed, skills of coordinating social interaction, informing others and the ability to confirm that the recipient understood the information, timeliness and accuracy of the implementation of the communicative act; 2) skills of non-verbal communication that include knowledge of body language, ability to make written messages, ability to present work results. The author complements these two groups of communication skills with the need to develop team work skills, professional ethics, skills of interaction with other people, skills of time management and working in difficult conditions (under pressure), leadership qualities, critical thinking, problem solving skills, creativity, conflict resolution, negotiation, decision-making, self-motivation, self-confidence and self-awareness [73].

When considering the classification of soft skills, it is advisable to focus on individual models that represent certain specialties, but are quite suitable

for other specialties as well. So, for example, in the model of soft skills of a secondary education teacher, T. Smagina and O. Shunevich [50] single out the following components and their contents, which can make up a model of soft skills of specialists of other specialties: 1) communication which is represented by soft skills of the ability to listen, argue and convince, create connections, conduct negotiations, make presentations, make self-presentations and public speeches, interact in a team; 2) self-regulation which is represented by the skills of managing one's own emotions, managing stress, managing one's own development, planning goal setting, time management, reflection, using feedback; 3) effective thinking which is represented by the skills of project thinking, thinking over and decision-making, information search and analysis, creative thinking, logical thinking, strategic thinking; 4) management which is represented by the soft skills of the ability to motivate, mentor and control the implementation of tasks, situational leadership, delegation, project management, providing feedback.

It is a reasonable opinion (M. Robles) [71] that soft skills are represented by interpersonal skills, personal qualities and career attributes, where the first group characterizes a person's relationships with others, the second group implies, first of all, friendliness, the ability to manage your time, organizational skills, and the third group includes communication skills, the ability to work in a team, leadership qualities, etc.

In our opinion, it is appropriate to present the relevant soft skills of a modern specialist in four conditional blocks: communicative soft skills (which are substantiated and described in the scientific literature in the greatest detail), thinking and metacognitive soft skills (the least detailed in research, in which they are separately referred to different groups of soft skills, in particular in personal, regulatory, thinking characteristics, etc.), regulatory soft skills (which are most often included in the group of personal skills in the literature) and career skills (which are noted in the literature as professional, business, etc.).

Fully agreeing with the expediency of considering soft skills in the dichotomy "internal mental – external mental" (B. Kingsley) [62], we referred such skills as regulatory and thinking as well as metacognitive to the internal mental group, while the external mental group included communicative and career soft skills.

## 1.2. Theoretical substantiation of the model of a modern specialist personality soft skills

Modern requirements for the professional training of specialists need clarification and conceptualization of soft skills, which, according to the Nobel laureate James Heckman, "determine success in life". Modern higher education in Ukraine is characterized by both rich classical experience and innovation in the development of hard skills related to professional competence, with the significant role of the competence approach, which has been dominant in Ukrainian pedagogy for several decades, though the problem of diagnosis and development of soft skills remains understudied.

The study and conceptualization of soft skills is an urgent problem of modern Ukrainian psychological science, because among a significant number of professional competences, various abilities, qualities, aptitudes of a person, soft skills are those that ensure career development in the context of earning money and achieving recognition (T. Chaudhari) [65].

Such diversity and non-unanimity in approaches to the classification of soft skills, the uncertainty of their list led to the need for the problem of conceptualizing the phenomenon of soft skills of a modern specialist and creating their author's model.

The presented classification does not reveal the functional content of soft skills, does not provide an opportunity to systematize soft skills in order to further study them and help future specialists develop these skills.

Based on the results of the analysis of the given classifications and lists of soft skills, we developed a theoretical model of soft skills of a specialist, which contain communicative, cognitive and metacognitive, regulatory and career soft skills.

The group of *communicative soft skills* traditionally includes the skills of verbal and non-verbal interaction and communication (C. Canney and A. Byrne) [54], which involve knowledge of body language, understanding posture and gestures, facial expressions of the interlocutor, the ability to change position in communication, start and end a conversation, determine appropriate topics for conversation, communicate with authoritative people. Skills of verbal communication include knowledge of language and grammar, adequacy of speech speed, skills of coordination of social interaction, informing others and the ability to confirm that fact that the recipient has

understood the information, timeliness and accuracy of the implementation of the communicative act; while non-verbal communication skills include knowledge of body language, the ability to make written messages, the ability to present work results (S. Vasanthakumari) [73].

Social intelligence is considered by us as a necessary soft skill of a specialist and is understood in the traditional definition of J. Gilford as the ability to distinguish verbal and non-verbal expressions of behaviour from the context, to recognize common properties in a certain flow of expressive or situational information about behaviour, to understand the relationships that exist between units of information about behaviour, to understand the logic of the development of integral situations of human interaction, the meaning of their behaviour in these situations, to understand changes in the meaning of such a behaviour (verbal or non-verbal) in different situational contexts, to predict the consequences of behaviour based on available information (J. Guilford) [60]. Social intelligence is an integral intellectual ability that determines success in communication and social adaptation, combining and regulating cognitive processes related to the reflection of social objects (a person as a communication partner or a group of people) (S. Sytnik, O. Gelever) [31].

Socio-perceptive skills are represented by the ability to perceive oneself through identification with others, perception of others through the relationship with oneself, perception of others through the results of their activities, direct perception of the appearance of others, perception of others through the explication of one's own internal states, etc. (Y. Vereshchynska) [6].

In addition, such skills are also important as the ability to resolve conflicts (C. Canney and A. Byrne) [54], the skills of teamwork (T. Chaudhari) [65] and team building as readiness for teamwork and a valuable attitude towards it (V. Gorbunova) [8], the skills of correspondence and storytelling as the abilities to compose stories that stimulates imagination, emotions, encourages a person to analyse this or that situation presented in the context, to compare it with one's own experience (O. Nagorna) [22].

We included the ability for self-presentation in a group of soft communicative skills, which help to manage the impression that the initiator makes on the target person, open presentation of one's competence and qualifications in order to maintain or strengthen one's influence on him/her, and obtain advantages when choosing candidates for work or position [30].

Public speaking skills and oratorical skills also turn out to be universal soft skills. In general, mastering rhetoric involves the development of correct pronunciation, speech culture, voice, intonation, diction, breathing technique, improvement of non-verbal communication (facial expressions and gestures), acquiring the art of public speaking, recitation, improvisation, self-presentation and business negotiations, various types of disputes (debates, discussions), etc. (T. Konivitska) [20].

The skills of cross-cultural interaction and communication involve the willingness to participate in the dialogue of cultures based on the principles of cooperation, mutual respect, tolerance for differences in cultural traditions and overcoming cultural barriers, the ability to see the relationship between different cultures, act as a mediator, interpret one culture in terms of another, the ability to critically and analytically understand one's own and other cultures, to be aware of one's own view of the world and the fact that one's thinking is culturally determined, and not just to be sure that one's worldview and understanding are natural (N. Voronkova) [7].

We included goal-setting skills in the group of *career skills*, which are understood as the strategy and tactics of goal setting, determined by the level of personal pursuits (K. Fomenko) [39] and coordination and project management, ethics of business communication, entrepreneurial skills, which traditionally belong to the list of soft skills of various specialties (C. Ciappei) [55] and others described below.

Among soft career skills, a special place is taken by delegation skills which means the ability to delegate tasks and powers to the person who takes responsibility for implementation of the tasks (L. Skibitska) [32].

Facilitation skills mean the ability to mutually influence people through social interactions, which increases their activity (O. Foksha) [38], they include the ability to actively listen, use timely and appropriate methods and styles of questioning, depending on the situation, the ability to rethink and generalize the discussion, identify consensus where possible, reformat the work of the group for its effective performance, focus on the positive, identify and manage problematic dynamics of the group, draw a constructive conclusion, use a number of methodological techniques for reorientation or activation of the group (this includes the use of flip charts and analytical tables), manage (keeping the group in constructive direction) the differences of opinions, where they appear [37].

Diplomacy and tolerance as soft skills are considered by us as the ability to conduct negotiations in a friendly atmosphere of cooperation and respect for colleagues (behavioural aspect), tolerance for other people's beliefs that differ from ours (cognitive aspect), which allow you to show loyalty to work tasks.

Career focus on management, self-development, and achievements are chosen by us among a number of career orientations as those that ensure career success in any field of activity, promote professional self-improvement, and prevent professional burnout.

An important soft career skill is leadership, which is the ability to influence individuals and social groups, labour teams, and direct their efforts to achieve the goals of the organization, firm, and enterprise (L. Sergeeva, V. Kondratyeva, M. Khromey) [29].

Assertiveness is also specified by us as a soft skill that ensures career growth, and is defined as a person's ability not to depend on external influences and assessments, to independently regulate one's own behaviour and to be responsible for it that is a distinctive feature of a successful personality. The main indicator of a person's assertiveness is the ability to take responsibility for one's own behaviour (K. Fomenko) [40].

For an experienced specialist, it is important to be able to transfer experience to the younger generation or newcomers, which enables his/her further career advancement. The skills of mentoring and supervision are recognized as management, control and improvement of the professional activity of the intern/trainee with the help of the experience of an experienced specialist (cited by U. Zaporozhtseva) [45]. Abnotivity is a complex ability to adequately perceive, comprehend and understand a creative student (trainee), the ability to notice a gifted student and provide the necessary support in the process of actualizing and realizing their creative potential (cited by T. Dotsevich) [10].

Hubristicity is a characteristic of a person that accompanies and ensures the process of self-affirmation, aimed at achieving self-respect and is determined by the motive for achieving perfection and the motive for achieving superiority in activity, where the first is the desire for self-affirmation through improving the results of one's achievements, focus on self-development, the ability to expand the sphere of one's self-realization and to achieve mastery in ones activity, while the second is the desire for self-affirmation through the achievement of primacy or authority among others

due to interpersonal rivalry, caused by the results of social comparison and dependence on external evaluations of activity (K. Fomenko) [39].

The author defines competitiveness, or competitivity, as the ability to outpace others in achieving the set goals in the course of the struggle to strengthen positions on the domestic and foreign markets, or in competition for a certain job or professional position, the ability of a specialist to satisfy social and production needs in the conditions of commodity-money economy, the ability to withstand the opposition of rivals in market conditions, adaptability to the market economy (K. Fomenko) [40].

*Thinking and metacognitive skills* are important soft skills that ensure the self-development and professional self-improvement of a specialist, resist his professional burnout, and ensure the support of steady interest in the profession.

Traditionally, the list of soft cognitive skills includes flexibility and speed of thinking, critical and systemic thinking of a specialist, where critical thinking is the ability to analyze and evaluate thinking with the intention of improving it (cited by M. Kruglyak) [46], an intellectually disciplined process of active and skillful conceptualization, application, analysis, synthesis, and/or evaluation of information obtained through observation, experience, reflection, reasoning, or communication that serves as a basis for beliefs and actions.

In its most refined form, it is based on universal intellectual values that go beyond individual subject areas: clarity, accuracy, precision, consistency, relevance, strong evidence, sound reasoning, depth, breadth, and fairness (cited by M. Kruglyak) [46].

Curiosity as openness to new experiences is also understood by us as a necessary condition for obtaining professional qualifications and further success in work. Curiosity is understood as the ability to wonder; openness and interest in everything new, with indifference as the opposite quality (O. Antonova) [1].

An important soft skill is the ability to reframe, which is manifested through the reverse process of framing: breaking the boundaries of current stereotypes, other frames are formed with the help of persuasive strategies, through which a person is offered to look at the world and themselves (R. Bandler, J. Grinder) [51].

Mastery of metacognitive strategies involves the ability to self-regulate cognitive activity, application of methods and techniques for regulating one's own thinking, memory, and imagination. Mastering metacognitive strategies

requires a specialist to have a certain degree of metacognitive involvement in activities, which is a reflexive ability to consciously monitor the course of cognitive processes and is manifested in the ability to plan cognitive processes, the inclusion of reflective functions in the implementation of these processes, due to which monitoring and control of cognition is carried out (cited by O. Shcherbakova) [42].

The ability to learn is considered by the author as an important metacognitive soft skill, because it provides the possibility of constant acquisition of professional knowledge and skills.

Creativity is defined as the creative abilities of an individual, included in the structure of giftedness as an independent factor and characterized by the ability to produce fundamentally new ideas (cited by O. Antonova) [1].

*Regulatory skills*, which in some classifications are also called personal (for example, by M. Robles) [71], are those personal resources (traits, properties) that ensure the personal well-being, resilience and vitality of a specialist, causing a long duration, high efficiency and reliability of the work path.

The list of volitional qualities, which we defined as soft skills, was formed according to the idea of S. Rubinstein on the relationship between the phases of a volitional act and the volitional qualities of an individual [27]. At the stage of goal-setting, such a strong-willed quality as initiative is actualized, which ensures a positive image of the employee in the organization, makes it possible to start one's own business, and promotes the disclosure of creative abilities. At the stage of discussion and struggle of motives in the structure of the volitional act, the volitional quality of independence is actualized, and at the stage of decision-making, the quality of determination is manifested. At the stage of performance, the energetic behaviour is determined by the volitional qualities of persistence, tenacity, responsibility, reliability and discipline. We consider all the mentioned qualities as urgent regulatory soft skills.

Scientists consider the optimum of two positions: as a positive expectation of the future and as an explanation of various life situations (especially successes and failures). Dispositional optimism is closely related to the emotional sphere of the individual and emotionally coloured representations of the subject. The attributive style is related to the regularities of the subject's cognitive activity, their abilities to reason, make

assumptions and conclusions about the causes of events (K. Fomenko, M. Kuznetsov) [41].

A sense of humour is the ability to laugh with others, including laughing at oneself, to see the funny side of the situation and to be able to make others laugh, to be cheerful, not serious. A sense of humour is determined by the presence of internal resources, in particular, mood, self-confidence, personal values, as well as external factors – culture, habitual atmosphere, environment in which humour is valued, and a specific context (P. Guitard et al.) [64].

We consider attention management as the ability to maintain an optimal amount of attention, distribute it to different objects, hold it, switching from one object to another, which is an urgent regulatory soft skill of a modern specialist.

Self-efficacy is a perception of one's own abilities to master or perform a certain activity, to adhere to a certain behaviour at the intended level, and also as a belief in the ability to regulate one's own functioning and feeling control over events that affect life (A. Bandura) [52]. Self-efficacy is an essential factor both for achievements in various activities and for physical and psychological well-being (cited by K. Fomenko) [39].

Implicit theories of growing abilities are also considered by us as important regulatory skills, acting as a person's perception of the potential opportunity to develop one's own cognitive abilities (O. Shcherbakova) [42]. The perception and belief that one's own abilities and professional skills can be developed is a significant factor of success in the profession (C. Dweck and E. Leggett) [66].

By agreeing with the definition of motivation of achievement proposed by K. Fomenko [39], namely as motivation to achieve success, a positive goal that involves active participation in the implementation of the goal, the choice of means aimed at achieving this goal, it is appropriate to define it as an important regulatory soft skill of a modern specialist.

Readiness to risk is a feature that conditions the state of expectation of a significant external stimulus caused by external meaningful motivation and determines the deployment of a certain program, which is correlated with the developed ability to make decisions and act successfully in conditions of uncertainty and potential threat (cited by O. Vdovichenko) [5].

Emotional intelligence is a person's ability to understand emotions and manage them (Ye. Karpenko) [17] and is understood by the author as the

ability to solve life tasks and problems thanks to empathy, understanding one's own and other people's emotions, and the ability to regulate them. In the presented model, emotional intelligence is classified as a regulatory soft skill.

Among regulatory soft skills, the leading role of self-regulation of the individual is quite obvious, which is the conscious subordination of actions to ethical and professional requirements; proper control of oneself, one's emotions, feelings, aspirations; the ability to stop and avoid unpleasant mood and mental states in certain situations; awareness of one's own aspirations and adequate self-knowledge, which involves adequate self-assessment of the level of one's knowledge, abilities, skills, talents, achievements of personal development, subject and professional development; implementation of tasks of professional, personal and subjective self-improvement based on self-knowledge.

Self-regulation of the individual is a conscious process aimed at building actions and behaviour that meet the tasks of personal development, professional and subject formation in the environment (O. Denys) [44].

Self-organization is an ability of the individual which is important for effective performance, and which is revealed in the activity of the individual regarding the orderliness of their own life activities, in the ability to organize themselves (M. Bond) [53]. The ability to implement psychotechnologies of time management in everyday life largely depends on the degree of development of self-organization. Time management is a set of methods and principles of optimal organization of time for the implementation of current tasks, work projects and calendar events; this is a system of methodological principles of self-organization and time space of the person (K. Fomenko) [40].

Reflexivity is a personal feature that ensures the functioning of reflection and enables self-construction, self-development, self-determination of a specialist's personality (O. Zymovin, Ye. Zaika) [12].

The model of soft skills presented in this research in some respects coincides with the concept of C. Canney and A. Byrne [54], which includes 1) basic communication skills; 2) interaction skills; 3) emotional skills; 4) cognitive skills. The first and the second groups were united by the author into the group of communicative skills, the third group covered a part of regulatory skills, and the last group was included in the thinking and metacognitive skills.

The list of communicative soft skills presented in this study fully corresponds to the logic underlying the classification of communicative skills

proposed by S. Vasanthakumari [73], where they are divided into verbal and non-verbal communication skills.

In the model of soft skills proposed by T. Smagina and O. Shunevich, the following components are highlighted: 1) communication; 2) self-regulation; 3) effective thinking; 4) management. In our model, these groups of skills are matched in the same order with such skills as communicative, regulatory, thinking and career ones. However, the compared classifications contain different lists of skills [50].

The author shares the opinion (M. Robles) [71] that soft skills are represented by interpersonal skills, personal qualities and career attributes. Compared to this model, in the author's model, the first group is represented by communicative skills, the second by regulatory skills, and the third one by career skills. The compared classifications contain different lists of skills.

## 1.3. The problem of soft skills in the structure of professionally important qualities and abilities of a technical specialist

Consideration of soft skills of a technical specialist is impossible without determining the specifics of technical activity, which, according to Yu. Vereshchynska [6], in the most general sense, consists in the combination of a subject-practical component, the basis of which is knowledge of the properties of the object which is dealt with, a social component caused by the development of production relations in the society and the subjective reflection of these relations by the individual.

As noted by M. Kanivets, the uniqueness of technical activity compared to other types of human practice consists in invention, construction, design, creation of systems that transform materials, energy, information into a more useful form [16].

L. Tovazhnyanskyi and O. Ponomaryov reveal the features of modern engineering and technical activity, in particular [36]:

1) ensuring the proper functioning of man and society, the development of techniques and technologies in the conditions of an innovative type of social development;

2) constant updating of technologies and products, which requires the corresponding continuous improvement from the engineering activity, taking

into account the trends of evolution of consumer demand and the development of the industry;

3) the dynamic development of today, which causes increasingly new requirements for the specialist such as creativity, a broad outlook, keen intuition, highly developed determination and the ability to rationally choose ways to achieve the set goals;

4) the impossibility of fully knowing the future development of engineering, which limits the understanding of the content of engineering education today;

5) the steady deepening of the social division of labour and the gradual complication of the content and nature of production as factors of emerging different branches of the economy in different areas of engineering activity, which makes it difficult for the engineer to define their own role in the production process.

The nature of engineering activity is determined by the following main features highlighted by various authors (for example, O. Yevdokymova; O. Ihnatiuk; N. Pidbutska) [11; 13; 25]:

- belonging to material production, technical practice;
- technical orientation (without and beyond this, the engineer is deprived of the subject of his activity);
- focus on the creation of machinery and technology, on the materialization, "reification" of scientific knowledge in production;
- the integrability of engineering activity, which implies a connection with socio-humanitarian sciences;
- scientific substantiation (conscious use of science for technical progress);
- the use of scientific knowledge to build technical and artificial systems;
- a high degree of risk and uncertainty;
- inseparability from technical and scientific-technical creativity;
- indirect influence on technology;
- the need to make decisions in a situation of lack or excess of knowledge.

In addition, rapid changes in technical activity, according to N. Pidbutska [25], are characterized by:

- active development of new technologies (nanotechnologies, computer psychotechnologies, the latest information technologies, etc.);

- integration of technical, natural and socio-humanitarian knowledge;
- convergence of the activity of an engineer in the industrial sphere of production, whose functions were the competent operation of technical complexes, organization and technology of production (that is, to a greater extent, the practical focus of activity), with the activity of a technical specialist in the field of science, which is aimed at creating fundamentally new systems and technologies;
- professional requirements for an engineer as a specialist capable of innovative activity in production conditions, which is associated with the increase and complication of the machinery and technology used in production, the change in the properties of various materials, the emergence of new forms of production management;
- the third technological wave, which led to the informatization of society, put forward new requirements for the personal characteristics of a specialist, which include their ability to quickly respond to changes, creativity, initiative, sociability, and versatility.

According to N. Pidbutska, the main purpose of engineering and technical activity is intellectual, scientific and technical maintenance of the sphere of material production, development of equipment, technology, ensuring scientific and technical progress, solutions based on natural-scientific, technical and socio-humanitarian knowledge of technical, technological, and engineering contradictions, problems and tasks [46].

The author emphasizes the importance of the socio-humanitarian component along with the dominance of a standard technical focus in the system of training a future engineer, which provides harmonious and comprehensive development of the student's personality and helps to meet the demand for specialists in the modern labour market.

The modern stage of the development of technical activity, according to F. Ponosov (cited by N. Pidbutska), is determined by a systematic approach to solving scientific and technical problems, which involves turning to social, natural and technical sciences; solving complex socio-technical tasks with application of humanitarian methods of studying the environment and human activity [25].

Technical activity has its own professional specificity depending on the subject and content of the work, however, scientific research provides typical

professional profiles of a specialist of such a direction, based on which it becomes possible to analyse soft skills of a specialist of a technical profile. The requirements for professional skills and personal qualities of a specialist in a certain direction determine the specifics of his professional training (T. Sapielnikova) [28].

The rapid pace of the scientific and technical revolution determines the following requirements for a modern specialist of a technical profile: broad, multifaceted, polytechnical training, development of systems of personal qualities of a specialist (in other words, soft skills), abilities, professional orientation; professional independence, the desire for constant professional growth; "sensitivity" to solving technical problems (improvement of the existing technology and introduction of a new one); broad general and professional technical knowledge and skills, developed technical thinking and imagination; sociability in business relations; self-control and diligent work [26, p. 219–220].

The features that ensure the successful performance of professional activities by future specialists in a technical field traditionally include highly developed technical and mathematical abilities, the ability to perceive a large amount of information, compare and analyze many disparate facts, flexibility of thinking, a high level of visual thinking, concentration, distribution and stability of attention, developed memory (long-term, short-term), spatial imagination, the ability to accept and implement new things in practice, developed visual-motor coordination, practical thinking (Yu. Vereshchynska) [6].

Yu. Vereshchynska [6] defines the following personal qualities, interests and inclinations important for the professional activity of the future technical specialist: methodicality, rationality, curiosity, independence, scrupulousness in work, persistence, observation, ingenuity, patience, emotional stability. The author believes that such professionally important qualities for students of a technical profile determine the specifics of their professional formation, which involves a certain way of interpreting the events of the surrounding world and one's own life. In addition, students of a technical profile are characterized by giving preference to the values of practicality, efficiency, effectiveness, focus on business, logic, consistency and understanding (M. Kanivets) [16].

Yu. Vereshchynska [6] points out that the style of interpretation of life events and their comprehension among students of technical specialties is mostly algorithmic, simple, does not involve excessive inclusion in the search

for cause-and-effect relationships (as in case of students of humanitarian specialties), is limited to actual needs. Students of technical specialties are less likely to think and learn "for the sake of learning something", their knowledge and skills have a practical implementation in professional activities. These circumstances focus the author's attention on the need to develop soft skills of students of technical specialties, because compared to representatives of socio-humanitarian specialties, they are characterized by less reflexivity, and therefore the lower level of development of those personal qualities and abilities that are traditionally considered soft skills.

A significant share in the development of personality of a technical university student is given to his value and conceptual sphere, on the basis of which personal qualities and abilities are formed, that can be considered soft skills. Thus, Yu. Vereshchynska emphasizes the high significance of the value and conceptual sphere in the professionalization of future technical specialists, which determines the success of the specialist's professional identification and outlines the specifics of their professional training [6].

The author notes that the disorganization of the value and conceptual sphere of technical university students, their crisis nature, the lack of a clear life line and position complicate the process of professional training of such students. In the study of value orientations of future technical specialists conducted by O. Kaminska, they are considered as personal formations of the student based on universal and national values, professional values of technology, engineering and fine arts [15].

T. Starovoyt showed the features of the professionalization of future technical specialists, the important role of which is played by the motivation of educational and professional activity, which mostly determines academic success [34]. The author determined that the educational and professional activity of students with low academic performance is determined by the experience of negative emotions of fear and anger, which indicates the frustration of their need to become a professional. The structure of motives for the educational and professional activity of students with a high level of academic achievements is characterized by the importance of motives that reflect the goals important for the profession. The predominance of positive emotions and personally meaningful motives of successful students of technical specialties acts as a content-forming motive of their educational and professional activity. These motives are "superstructured" on the prevailing values of students and encourage them to study successfully and realize

themselves as professionals. On the other hand, among unsuccessful students of technical specialties, negative emotions and motives of avoidance and a formal attitude to learning prevail. Such motives and emotions, acting as content-forming, organize the value and conceptual regulation of the educational and professional activity of students in a different way. Instead of focusing on knowledge and development of professional skills, they are centered on calmer and easier learning, the interests of such students lie outside of educational activities.

T. Kartel proved that the professional formation of a future technical specialist is a productive process of development and self-development of his personality, mastering and self-designing professionally oriented types of activities, determining their place in the world of the profession, realizing themselves in the profession and self-actualization to achieve the heights of professionalism. The effectiveness of the professional formation of the future engineers personality is determined by a number of factors: a psychologically grounded choice of profession, professional selection of students who have an interest and inclination to the profession, the formation of their professional orientation, complementing the content and technology of the professional educational process with a developmental nature, successive mastering by the future specialist of the system of interdependent types of activities [18].

I. Perig [23] identified a number of components of general and special abilities of a future technical specialist, namely:

- the research component is described by the following characteristics: 1) the need for new information in the field of science and technology; 2) the ability to learn, research, discover new facts in the field of engineering; 3) susceptibility to inconsistencies, contradictions, discrepancies between existing technical capabilities and new scientific ideas; 4) the ability to purposefully research and study important scientific and technical problems; 5) a sense of tolerance for ambiguity and uncertainty at the beginning and in the process of scientific and technical activity;
- the design and construction component is represented by the following qualities: 1) interest in creating new projects and designing original technical objects; 2) awareness of promising scientific and technical problems, developments, projects in a certain field of engineering practice; 3) the ability to form a design idea in technical images and concepts; 4) the ability to build a design project of a new technical device; 5) a sense of responsibility when performing scientific and technical tasks;

- the innovative component is provided by the following qualities: 1) the need to create and implement innovations that generate significant changes in technical practice; 2) the search for new engineering solutions to a problem or task that can be implemented in production; 3) planning the work on the implementation of innovations; 4) obtaining new positive results during the implementation of innovative activities; 5) a sense of satisfaction from the introduction of new scientific and technical ideas;
- the technological component is characterized by: 1) the desire for technological development of scientific and technical ideas; 2) the use of existing technological experience in performing creative engineering tasks; 3) purposeful technological implementation of scientific and technical ideas into production; 4) execution of the assigned technological task from the beginning to the end; 5) a sense of professional satisfaction from the effective technological implementation of an idea, a project in a specific industrial product;
- the communicative component is revealed in: 1) the need to communicate with colleagues; 2) the ability to search and obtain new scientific and technical information; 3) the ability to correctly understand colleagues, partners in engineering activities, to find out the factors of their behavior, to understand their situation; 4) the ability to present competent scientific and technical presentations, reports, lectures to scientists and engineers; 5) tactful, intelligent attitude towards partners in communication, attention to their interests, the ability to empathize;
- the organizational component is characterized by: 1) the desire to become a leader, an organizer of creative engineering work; 2) mastery of methods of self-organization and organization of collective engineering activities; 3) tendency to make collective technical decisions; 4) the ability to organize creative interaction in a group of colleagues, establish business cooperation between its members; 5) responsibility for the results of joint engineering activities;
- the worldview component is revealed through: 1) the desire for a philosophical understanding of the facts, for the formation of a scientific and technical worldview; 2) the ability to conduct continuous creative scientific and technical research; 3) the ability to forecast scientific and technical progress based on establishing the laws of existence; 4) verification of the validity of one's own and others' scientific and technical ideas; 5) love for the truth;

- the ethical component is represented by such qualities as: 1) the desire to bring good and benefit to people and society with one's engineering work; 2) interest in the moral foundations of people's lives and one's own scientific and technical creativity; 3) tendency to observe moral standards in scientific, technical, and engineering activities; 4) striving to achieve new results of engineering activities that improve and humanize people's lives; 5) a sense of humanism and kindness when performing professional engineering activities;
- the aesthetic component involves: 1) the desire to decorate the surrounding world with achievements of scientific and technical creativity; 2) the ability to use the ideas of technical aesthetics and design in one's own engineering activity; 3) tendency to aesthetic improvement of the world of technology as a component of engineering culture; 4) effectiveness in the aesthetic improvement of existing scientific and technical objects; 5) sense of harmony, perfection, and beauty.

In our opinion, the research, design and construction, innovation, aesthetic and technological components of the professional competences of a technical specialist highlighted by I. Perig, actually correspond to the content of the engineer's work, and are ensured by the degree of development of the thinking-metacognitive component of soft skills.

The communicative and organizational components of the professional competence of a technical specialist, noted by I. Perig, are understood by the author as additional components that ensure the success of professional communication and career growth of a specialist and essentially are included in a set of his soft skills, therefore in the author's model they correspond to communicative and career soft skills. Worldview and ethical components of the technical specialist's professional competence, highlighted in the research of I. Perig, are provided by a degree of success of the functioning of regulatory soft skills [23].

L. Yakovytska [43], studying the structure of the scientific and technical activity of specialists, defines a number of its components, represented by the psychological qualities of a person, which are responsible for the processes of activity and labor self-regulation: intellectual and cognitive; personal-volitional; need-motivational and evaluative; communicative and operational-technical. In the most modern branches of production and scientific and technical activity, the cognitive and operational-technical components are converging. The content of the operational-technical sphere in the era of the

scientific and technical revolution, information systems and computer technologies is changing significantly, and not only purely technical skills and abilities (hard skills) come to the fore here, but also the ability to creatively solve production tasks and operate with information and abstractions, as well as transform it (creativity as a soft skill). The cognitive component of scientific and technical activity is undergoing significant changes, since unlike manual tools, which require visual-active thinking, machine production requires, along with empirical thinking, abstract thinking as well, and modern complex-automated production with information technologies requires systematic abstract thinking (I. Perig) [23].

In the characteristics of the personal-volitional component of technical activity L. Yakovytska notes that the development of an employee's creative potential is associated with manifestations of such volitional qualities as self-control, initiative, purposefulness (the person possesses the conditions for achieving a goal, therefore they act purposefully) [43]. An executive-type employee has one dominant volitional quality – diligence. Unlike this type, an independent creative worker is characterized by high working activity, a creative approach to work, responsibility, conscientiousness, etc. The motivational component of scientific and technical activity is characterized by actualization of the need for freedom and autonomy, and the communicative component is marked by independent creative thinking.

In the study of L. Yakovytska, the psychological content of activities and qualities, which are necessary for successful interaction with a certain subject of work within the limits of the professions "human – technology", was revealed, namely: spatial thinking, creative scientific and technical thinking, ingenuity, overcoming mental inertia, abstraction, technical fantasy and intuition, the ability to transform information – to reconstruct, think by analogy and transfer prototypes to new conditions, analyze, synthesize, combine and form new ideas from these combinations which are regarded by the author as thinking and metacognitive soft skills; observation, technical acumen, the ability to read symbols in formulas and drawings, translate them into visual images (that is, decode information) and use them; the ability to perform reverse mental operations – to encode information into formulas, drawings and symbols and to use them, which should be considered as solid skills.

The qualities of observation, a high ability to coordinate hand movements, including fine ones, concentration of attention, organization

(L. Yakovytska), which the author considers as regulatory soft skills of a technical profile specialist, are also important for the technical university graduate [43].

V. Petruk included the following into the basic professional competences of technical specialists [24]:

1) the motivational component is represented by internal motivational settings of positive motives for learning and acquiring theoretical (the use of interdisciplinary connections and acquired knowledge of fundamental disciplines) and technological (mastery of common ways of performing actions, optimization of the sequence of selected actions) competences;

2) the cognitive-creative component is the ability to creatively acquire knowledge, skills, and abilities, to have the creative potential of self-education and self-development, which determines the student's ability for successful creative activity;

3) the communicative component is represented by the use of productive communication and interaction for the realization of common activity goals, readiness for dialogue as a method of assimilating educational material, mastery of techniques and means of business relations;

4) the theoretical and technological component implies the availability of a system of professional knowledge, the ability to integrate knowledge in new situations, the ability to effectively solve traditional and non-traditional technical problems, the ability to develop engineering technologies, analyze technical documentation, including that written in foreign languages, independently obtain information, constantly raise the educational level;

5) the production-technological component is the ability to plan technological processes, use the experience of others, mastery of methods of introducing one's own technical and technological developments into the production process, mastery of information technologies;

6) the socio-communicative component is the readiness for mutual understanding and interaction in communication and relationships, the ability to discuss and make joint decisions, the ability to take responsibility for implementation of decisions, the ability to avoid conflicts, tolerantly resolve them between other members of the production team;

7) the design and construction component is the ability to design and construct technical equipment, technological processes, computer control systems and others (depending on specialization);

8) the research component is the ability to identify and formulate research problems, the ability to explore and improve objects and means of engineering work, to formulate well-grounded conclusions regarding the obtained research results;

9) the organizational and management component is the ability to rationally organize profitable production and manage it;

10) the socio-methodical component is the professional mobility, a creative approach to working with a team, knowledge of the basics of the conflict theory, the ability to combine one's own interests and the needs of the enterprise and society, the ability to constantly improve the educational level, the need to actualize and realize one's own potential, the ability to accurately and correctly transfer knowledge, formulate requirements and tasks to subordinates, etc.

The cognitive-creative, theoretical-technological, production-technological, design-construction and research components of the professional competence of a technical specialist, presented in the model of V. Petruk, are ensured, in the author's opinion, by the successful functioning of the thinking-metacognitive component of soft skills. The motivational component is ensured by the availability of a system of regulatory soft skills, and the communicative, organizational-management and social-methodical components are provided by communicative and career soft skills [24].

N. Pidbutska refers a group of intellectual qualities to profesionally important qualities of a technical specialist, that includes technical and abstract thinking and creativity, a group of emotional-volitional qualities represented by emotional intelligence, stress resistance, patience, persistence and perseverance, a group of mnemonic qualities, in particular, the ability for fast storage and reproduction of information and memory capacity, a group of conative qualities, which includes the speed of reactions, hand motor skills and speed of decision-making, a group of attentional qualities, which includes the distribution and volume of attention, concentration and observation [25].

As N. Pidbutska [25] notes, an important aspect of the analysis of future engineers' professionalism is the current requirements of employers for a technical specialist, since professionally important, individual and professional qualities must be correlated with the requirements of the labour market in order to make them competitive. The author cites the peculiarities of the requirements for engineers, the so-called key skills, which are the requirements of potential employers, training programs for obtaining

certification of CPRE (Certified Professional for Requirements Engineering) with the following levels: Foundation, Advanced, Expert, namely:

- technical competence, mathematical abilities, strong fundamental training, which constitute a group of a technical specialist's solid skills;
- communicative skills as the ability to effectively communicate with others, including those of a higher status, written literacy, knowledge of another language, oratory skills, which are considered by the author as a separate group of communicative soft skills;
- leadership abilities, the potential based on being able to organize work, delegate responsibilities, influence employees, and understand responsibility for results; in the presented study, the specified qualities belong to the group of soft career skills of a technical specialist;
- creativity, which is necessary for a non-standard approach to solving professional tasks, as only a creative specialist will be able to make an invaluable contribution to the development of society, which is part of the thinking and metacognitive soft skills of a technical specialist;
- the ability to work in a team to solve problems, and critically analyze them; the presented qualities and abilities are considered by the author as those which are included in the group of communicative soft skills of a technical specialist;
- problem-solving skills as the ability to constructively resolve complex professional situations that involve making extremely difficult decisions are referred to regulatory soft skills of a technical specialist;
- knowledge of time management as the ability to organize one's own time, plan the daily routine is referred to regulatory soft skills of a technical specialist;
- motivation and enthusiasm due to which the specialist will be able to lead the team, developing both themselves and the team accordingly, are regulatory soft skills of a technical specialist;
- adaptability and flexibility, which are necessary in communication with various people, as representatives of various companies from different regions and countries, are regulatory soft skills of a technical specialist;
- observation is referred to thinking and metacognitive soft skills of a technical specialist;

- the ability to build friendly relationships, which is necessary for the effectiveness of the work in general is referred to soft communication skills of a technical specialist.

According to the EMF International Register of Professional Engineers, the professionally important qualities and abilities of a technical profile specialist are those that the author understands as solid skills of a technical profile specialist, namely:

- application of universal knowledge (possession of broad and deep fundamental knowledge and the ability to use it as a basis for practical engineering activity);
- application of local knowledge (possession of the same knowledge and the ability to use it in practical activities in the conditions of a specific jurisdiction);
- analysis of engineering tasks (setting, research and analysis of complex engineering tasks);
- design and development of engineering solutions (design and development of engineering solutions for complex engineering problems);
- evaluation of engineering activities (evaluation of results of complex engineering activities);
- responsibility for engineering decisions (responsibility for making engineering decisions on a part or the entire complex of engineering activities);
- organization of engineering activities (organization of a part or the entire complex of engineering activities);
- engineering ethics (conducting engineering activities in compliance with ethical standards);
- public safety of engineering activities (understanding of social, cultural and environmental consequences of complex engineering activities, including those related to sustainable development);
- legality and normativeness (compliance with legislation and legal norms, protection of people's health and ensuring the safety of complex engineering activities).

In addition, the EMF International Register of Professional Engineers includes the following qualities and abilities, which are soft skills in their content, in particular:

- communication skills (clarity of communication with other participants of complex engineering activities);

- the ability for life-learning (continuous professional improvement, sufficient to maintain and develop competences);
- prudence (being guided by common sense when carrying out complex engineering activities).

Thus, the weight of the soft skills of a technical specialist is becoming increasingly important in various classifications of requirements to technical activity and professionally important qualities of the subject of the technical labour as well as educational and professional activity. A detailed analysis of the soft skills of future technical specialists is presented in the following sections of the monograph.

## Conclusions

The results of the theoretical analysis of the problem of soft skills showed that the ideas about their structure, inventory and characteristics are different in the modern research of psychological, pedagogical and managerial areas. None of the existing classifications of soft skills today reveal the requirements for the training of a modern specialist, either by emphasizing social (communicative) skills, or by revealing the urgency of certain skills for specialists in certain specialties. There are attempts to classify soft skills into inter- and intrapsychic according to genesis and meaningful and functional according to purpose.

The presented study shows a new author's model of soft skills of a modern specialist, which represents the inter- and intrapsychic reality of an individual and contains soft skills described in traditional studies, as well as those proposed for consideration for the first time, in particular, abnotivity, hubristics, implicit theories of growing abilities. The shown theoretical structural model of soft skills contains the following blocks: 1) thinking and metacognitive skills; 2) regulatory skills; 3) communication and 4) career skills.

Among the analyzed approaches to classifications and structural models of soft skills, the structural model of soft skills of a modern specialist proposed in this study develops those ideas that allow distinguishing soft skills according to their genesis and direction of functioning in the psyche,

representing inter- (communicative and career) and intrapsychic (thinking-metacognitive and regulatory) soft skills.

The presented study shows the author's model of soft skills of a modern specialist. Among the analyzed approaches, the one in which soft skills are considered as a set of intra- and interpsychic phenomena is the most heuristically fruitful, because it allows distinguishing soft skills according to their genesis and direction of functioning in the psyche.

The presented study shows a new author's model of soft skills of a modern specialist, which represents the inter- and intrapsychic reality of an individual and contains soft skills described in traditional studies, as well as those proposed for consideration for the first time, in particular, abnotivity, hubristics, implicit theories of growing abilities. The presented theoretical model of soft skills contains two intrapsychic blocks (thinking and metacognitive skills and regulatory skills) and two interpsychic blocks (communicative and career skills).

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# Chapter 2. Communication soft skills of the future specialist

## 2.1. Theoretical substantiation and operationalization of communication soft skills of the abilities of the future specialist

According to our concept of soft skills of the future specialist, the content of communication soft skills consists of:

1) skills of verbal and non-verbal interaction and communication;
2) social intelligence and social-perceptive skills;
3) social creativity;
4) the ability to resolve conflicts;
5) teamwork skills (team building and organizational skills);
6) self-presentation ability, public speaking and oratorical skills;
7) writing and speaking skills (expressiveness of speech, correspondence and storytelling skills);
8) the ability to persuade;
9) the ability to negotiate;
10) skills of intercultural interaction and communication.

*The skills of verbal and non-verbal interaction and communication* in the presented study are understood as a number of communicative abilities that enable the effectiveness of the professional activity of a specialist in situations of interaction with colleagues, clients and other persons involved in it. At the elementary level, soft skills of verbal and non-verbal interaction can be operationalized through communicative dispositions and abilities such as orientation to communication and interaction with others, openness to the interlocutor and readiness for communication.

At the highest level, the skills of verbal and non-verbal interaction and communication are represented by communicative creativity, the phenomenology of which is revealed below.

I. Strelkova and A. Yuzhaninova define the phenomenon of communicative creativity as the ability to improvise in the communicative and creative interaction of people (cited by A. Antoshkiv) [2]. Communicative creativity is a divergent ability to produce a large number of options for behavior and reactions in situations of interpersonal communication, the

ability to flexibly change in response, the use of various methods, strategies and tactics of behavior and in novelty, unusual ideas, non-standard attitude to communicative situations and their non-standard solution (A. Antoshkiv) [2]. In the process of communication, participants need not only to use their own actual intellectual and emotional experience, but also to develop it, which is provided by communicative creativity (cited by A. Antoshkiv and M. Kolisnyk) [1]. So, communicative creativity is the result of communicative skills, emotional-intellectual and emotional-creative abilities of an individual which is manifested in the divergent thinking of an individual who implements social interaction (A. Antoshkiv) [2].

According to A. Sarapulova, communicative creativity is one of the key qualities of a modern person, which enables effective interaction with others, easy adaptation to a foreign cultural environment, changing communicative strategies and tactics of behavior, overcoming communicative barriers (cited by A. Antoshkiv and M. Kolisnyk) [1]. Communicative creativity is a dynamic integrative quality that ensures effective interaction with representatives of other cultures due to the strengthening of creative potential even with a limited reserve of linguistic means (cited by A. Antoshkiv and M. Kolisnyk) [1]. According to A. Tasova et al., communicative creativity is the ability to adapt for optimization of communication (cited by A. Antoshkiv and M. Kolisnyk) [1].

T. Barysheva notes that communicative creativity determines the success of the joint creative activity among representatives of various professions, especially the socio-economic group, where the object of activity is a person (quoted from A. Antoshkiv and M. Kolisnyk) [1]. However, in our opinion, communicative creativity as the highest manifestation of soft communication skills is universal for all professions, agreeing with the opinion of N. Stepina that the presence of communicative creativity is a condition for competence and success (quoted from A. Antoshkiv and M. Kolisnyk) [1].

R. Belousova [3] considers communicative creativity as a stable ability of the individual, which involves intellectual, emotional and behavioral components, the totality of which contributes to the non-standard, unconventional solution of communicative situations, the manifestation of creativity in communication, the generation of original ideas and ways of communication, the choice of optimal strategies of behavior that ensure successful interaction with other people. According to H. Zhelezovska, creative communicative behavior is a person's willingness to be a member, the subject of a joint creative process, taking into account the established norms and traditions of communication, and at the same time it is the ability

to abandon fixed, trivial ideas in the analysis and solution of a social problem (cited by A. Antoshkiv and M. Kolisnyk) [1].

A. Golovanova defines communicative creativity as an individual's ability to solve problems in a non-standard and effective way by strengthening the communicative factor, the ability to find fundamentally new or improved solutions for resolving a communicative task. Communicative creativity provides non-standard and effective new opportunities for solving problems due to the strengthening of the communicative factor and is the ability for social thinking (cited by A. Antoshkiv and M. Kolisnyk) [1]. According to T. Osypova (cited by A. Antoshkiv and M. Kolisnyk) [1], communicative creativity is the creative ability to plastically and adequately change the experience of communication, as well as to create new goals, original means and methods of interaction, in particular, going beyond barriers, stereotypes, attitudes, principles and habits. As noted by N. Alekseeva (quoted from A. Antoshkiv and M. Kolisnyk) [1], communicative creativity makes it possible to create and use new, original, non-standard ways and means of communication that provide effective, quick and creative solutions to a communicative situation.

Important criteria of communicative creativity are the ability to solve tasks that arise in the process of interpersonal communication, to find a way out of a difficult, sometimes conflicting communication situation, to apply different tactics of behavior to achieve specific goals, with the aim of changing the creative level of communication and using methods of problem situations [1].

As noted by S. Skvortsova, the goals of communication are important in the organization of creative communicative activity, in particular establishing contacts between dialogue participants; exchange of communication messages; encouraging the partner's activity in communication, aimed at the implementation of mutually beneficial actions; coordination as harmonization of joint activities; awareness of the meaning of intentions, attitudes of the partner in communication; impact on emotions, intentions, behavior, thoughts; establishment of social relations in the system of business communication; partner's persuasion, conflict resolution (quoted from A. Antoshkiv and M. Kolisnyk) [1].

A. Golovanova refers the following to the criteria of communicative creativity:

- the ease of creating a large number of options for behavior, that is, the ability to produce different options for responding in situations of interpersonal interaction;

- flexibility in changing response tactics in communication, the ability to change techniques and tactics of social behavior in a timely manner;
- originality in creating non-standard ways of solving communication situations, the ability to solve new unusual forms of social-communicative situations [1].

R. Belousova defines the structural components of communicative creativity as the ease of communication, the ability to self-present, a tendency towards independence in communication, emotional stability in conflict situations, a tendency to manipulate in communication, communicative expressiveness and competence [3].

T. Barysheva refers the ability to cooperate and motivate the creativity of others, the ability to accumulate creative experience in communication to the structure of the communicative symptom complex of creativity (cited by A. Antoshkiv and M. Kolisnyk) [1].

Communicative creativity is manifested in the development of creativity during communication and is determined by such communicative goals as establishing social contacts; exchange of communication messages; motivation of the partner's activity in communication; coordination of joint activities; understanding the partner's feelings and intentions; influence on emotions, intentions, decisions, thoughts of the partner; establishing relationships in the business communication system; partner's beliefs; conflict resolution (quoted from A. Antoshkiv) [2].

*Social intelligence* and social-perceptive skills as its operational mechanisms are defined by us as a separate soft communicative skill.

The term "social intelligence" in psychology was proposed by E. Thorndike to denote foresight in interpersonal relationships. He considered social intelligence as a specific, cognitive ability that ensures successful interaction between people and has the main function of predicting behavior. Considering the term "social intelligence", E. Thorndike argued that it exists separately from ordinary intelligence [75].

As noted by O. Sasko [20], G. Allport associated social intelligence with behavioral skills rather than with cognitive activity, while other scientists refer it to some cognitive processes, in particular F. Godefroid characterized social perception as social intelligence in the sense of E. Thorndike, and H. Eysenck

defined social intelligence as the ability of an individual to apply general intellectual abilities in order to adapt to the demands of society [20].

The author of the first test for measuring social intelligence J. P. Guilford associated it with the cognition of behavioral information. Based on his concept, social intelligence is an integral, intellectual ability that determines the success of communication and social adaptation [84]. Continuing the ideas of J. P. Guilford, M. E. Ford and M. S. Tysak managed to demonstrate that social intelligence is a coherent group of mental abilities related to the processing of social information.

Social intelligence belongs to the field of interaction of intelligence with the surrounding world, according to R. Sternberg. In his opinion, this is the mental guidance of behavior that serves the purpose of ensuring the relationship between the individual and the environment. R. Sternberg, developing the investment theory of creativity, asserted that a creative person is distinguished by the ability to invest his/her strength in ideas that are undervalued by professional society in order to develop and implement them. The author emphasized that a scientist should be distinguished by a high level of not only general, special, but also social intelligence. After all, in connection with the inclusion of creativity in the extensive network of division of labor, its progress is becoming increasingly collective. In addition, R. Sternberg emphasized that implicit learning (learning by doing) is the distinguishing criterion between academic and practical (social) intelligence. In the basis of social intelligence, according to R. Sternberg, lies the so-called tacit knowledge, which arises from the practice of real human interaction with the world [70].

In general, different approaches to describing social intelligence are possible. T. Biusen defines social intelligence as "an indicator of the extent to which we are able to communicate with other people" and considers it in the context of "a wide range of different skills and abilities" (cited by O. Sasko) [20]. The components that, in his opinion, characterize a person with developed social intelligence include:

- the ability to listen to people;
- the ability to conduct a conversation in various social situations;
- the ability to "sell" yourself and your ideas;
- the presence of a positive psychological attitude towards others and oneself;

- the ability to get out of "inconvenient" situations;
- the ability to establish and maintain good relations with people;
- the ability to stand out from the crowd.

O. Chesnokova, considering different approaches to the study of social intelligence, gives the following definition: "it is the ability to single out the essential characteristics of a communicative situation and the ability to outline possible ways of consciously mediated influence on the communicative intentions of other people in order to achieve one's own or general objective or communicative goals" (cited by O. Sasko) [20].

O. Bodalov understands a person's social intelligence as his/her integrative social-cognitive traits, as well as a set of other psychological formations that ensure the success of communication (cited by O. Sasko) [20].

Social intelligence is a set of cognitive functions that determine the individual's ability to learn social reality, self-regulation and self-knowledge, which serve the purpose of the subject's adaptation to the social environment and are guided by communicative competence (O. Sasko) [20].

In the study of Yu. Yemelyanov, the essence of social intelligence is defined as the ability to understand oneself, as well as other people, their relationships, and predict interpersonal events. The author uses this term to denote the socio-gnostic potential of a person. In his opinion, the sphere of possibilities of subject-subject cognition of an individual can be called their social intelligence. Substantively, Yu. Yemelyanov understands social intelligence as the steady ability to understand oneself, other people, their relationships and predict interpersonal events based on the specificity of thought processes, affective response and social experience. He distinguishes such basic functions of social intelligence as adaptive, cognitive, prognostic, regulatory, communicative (cited by O. Sasko) [20].

D. Ushakov, based on his research, proposed the following way of integrating knowledge about social intelligence into the general theory of intelligence according to the following provisions:

1. Social intelligence is a cognitive ability that is one of the types of intelligence that obeys its general laws. It regulates cognitive processes related to the reflection of social objects (a person as a partner in communication, a group of people). The processes that create social intelligence include social sensitivity, social perception, social memory, and social thinking.

2. The conditions of the environment for the formation of social intelligence are mostly interrelated with the communicative features of people. This characteristic of social intelligence is the reason for its low correlations with other types of intelligence and the presence of connections with personal characteristics.

3. Characteristic features of social intelligence are provided by representative systems that make up its basis: a combination of verbal and non-verbal (intuitive) representation (cited by O. Sasko) [20].

The concept of D. Ushakov, which develops from a structural and dynamic position, is more modern and comprehensive. According to this author, social intelligence has the following structural features:

- continuous character;
- the use of non-verbal representation;
- loss of accuracy of social assessment during verbalization;
- formation in the process of implicit learning;
- the use of internal experience.

Research by S. Belova clarified the position of D. Ushakov. The paper demonstrates that social intelligence can work in different modes depending on the subject's attitude. With a cognitive attitude, a person evaluates others without using a verbal description of the reasons for this evaluation. With the mindset to verbalization, that is, when it is necessary to explain the reasons for the assessment, the accuracy of the assessment decreases. The study made it possible to conclude that verbalization impairs the functioning of social intelligence, which in this work was defined as the ability to assess a child's intelligence based on a fragment of a video recording. When evaluating, people use unconscious criteria. During verbalization, other criteria are named, which are then used for evaluation. This is what worsens its accuracy. Results of S. Belova tesify the intuitive nature of evaluating another person's intelligence. Reflection of such a process causes a decrease in the quality of assessment (cited by O. Sasko) [20].

D. Ushakov offers three options for explaining the nature of social intelligence as the ability to understand people and social situations: 1) social intelligence is a special ability that differs from other types of intelligence, but is related to them; 2) social intelligence is not as much as an ability but a system of knowledge and skills acquired during life. Therefore, it means competence in the field of social cognition, and not a special ability; 3) social intelligence is a personal trait that determines the success of social

interaction. Thus, social intelligence is associated with such cognitive abilities, which, unlike others, turn out to be parts of constructs in which cognitive abilities are combined with personal traits. From the standpoint of structural and dynamic theory, the level of social intelligence of an individual depends on:

- the formation potential, which also manifests itself at the level of general intelligence;
- personal, first of all emotional, features, which to a greater or lesser extent involve human forces in communicating with other people and getting to know them;
- how a person's life path takes shape, whether they have to direct their energy to interaction with other people for substantive work [20].

*Social intelligence* in the study of L. Yuzhaninova is considered in three dimensions, which are: socio-perceptive abilities, social imagination and communication techniques. Social-perceptive abilities ensure accuracy in understanding the nature of interpersonal relationships. This includes the ability of self-knowledge, that is, awareness of one's individual and personal characteristics, motives and the nature of self-perception by others. Social imagination should be understood as the ability to imagine individual and personal characteristics of people based on external signs, as well as the ability to predict the nature of an individual's behavior in specific situations, accurately predicting the characteristics of external interaction. The third component of social intelligence is communication techniques. Social intelligence, in this case, is manifested in the ability to assume the role of another, control the situation and guide interaction in the direction required for the individual, using numerous tools and means of communication (communicative competence). The highest form of manifestation of the individuals potential for social intelligence is the ability to influence the mental states and manifestations of other people, as well as to influence the formation of their mental qualities (cited by O. Sasko) [20].

Kunitsyna adds the following to the above components in the structure of social intelligence: 1) communicative and personal potential or a set of properties that facilitate or hinder communication; 2) characteristics of self-awareness, such as a sense of self-respect, freedom from complexes, etc.; 3) energy characteristics: endurance, activity (cited by O. Sasko) [20].

*Social creativity* is a specific creative ability that arises in social interaction or social activity. Regarding the individual characteristics that an

individual uses to solve social problems in original, unique and situation-adequate ways, the issue of developing social creativity is particularly important (K. Gu) [45]. Social creativity is a continuum of two dimensions: interpersonal social creativity presented by people in the process of working with personal relationships (for example, individual leadership in everyday life), and social creativity that affects important aspects of social life (for example, social creativity of prominent religious or political leaders); social creativity is the most common type of creativity, which is a combination of cognition, action and relevant personality traits formulated on the basis of core adaptive skills (C. Mouchiroud and T. I. Lubart) [58].

Social creativity is a phenomenon that explains mental abilities aimed at solving problems where "the answer is not known", which requires learning from each other and the creative synthesis of new knowledge by combining different perspectives and experiences and using the "symmetry of ignorance" as a source of creativity (G. Fischer, P. Ehn and others) [44].

O. Demchenko implicitly understands social creativity as a component of social giftedness within the triad "creativity–non-standard–behavior" [8]. Yu. Nikonenko emphasizes the importance of social creativity in the structure of social abilities, which is determined by a combination of perceptual (social intelligence), emotional (emotional intelligence), behavioral (social adaptation and dominance) and creative (creation of socially new) components of personality. Here, the creative component of social abilities is understood as the ability to problematize, agree, and dialectically synthesize elements of the social situation that are significant for most of its participants [14; 28].

Social creativity is an important ability to propose and solve all kinds of social problems, which social life contains and organizes, providing effective social solutions and maintaining a high level of mental health. Social creativity cannot be reduced to social skills, abilities aimed at solving social problems, or social leadership skills, since the first two involve the general social adaptation of a person, the expediency and usefulness of problem-solving methods, and social leadership emphasizes the individual ability to manage and organize interpersonal relations. Social creativity, on the other hand, is a higher level and more complex characteristic that involves the ability to support all types of interpersonal relationships and solve social problems (C. Mouchiroud and T. I. Lubart) [58].

Social creativity is revealed in the non-standard solution of social tasks and problems, which makes it possible to create something new in the sphere

of interpersonal interaction and is mostly characteristic of socially adapted individuals who do not feel situational tension in social interaction (cited by O. Poezdnik) [30].

Social creativity is a multidimensional, complex structure containing communicative and personal potential, certain characteristics of self-awareness, social perceptions, thinking, imagination and representation, the ability to model social phenomena, understanding people and their driving motives (cited by O. Poezdnik) [30].

H. Tajfel and J. C. Turner [72] define social creativity as one of the strategies for appealing or maintaining a positive distinction for groups or social categories with which he or she identify themselves. Rather than seeking ways to improve one's in-group status through social competition – for example, through open hostility – with a relevant out-group, social creativity is based on reframing or redefining intergroup comparison in a favorable way.

O. Poezdnik defines social creativity as a multidimensional ability for effective social interaction and social activity, which is characterized by a number of qualities standard for general creativity (speed, flexibility, originality and development), which are meaningfully determined by the motivation of affiliation and creativity, readiness to cooperate with others, high social intelligence and verbal creativity, social competence, mastery of communication strategies, supra-situationalism in decision-making in interaction, social transgressiveness, organizational and communicative abilities in situations of cooperation and competition, the presence of team values, altruism [30].

As noted by O. Vlasova, social creativity is associated with developed social-analytical and social-modeling abilities, which are in a certain hierarchical relationship, and the social-creative potential of an individual is the ability to agree on the positions of the parties, problematize and dialectically synthesize elements of the social situation [4].

*Conflict resolution skills* as communicative soft skills in the presented study are operationalized through dialogicity in communication and the ability to resolve role conflicts as a component of an individual's role competence. The dialogical style of communication is aimed at equal parity communication and cooperation, joint creativity, mutual understanding and mutual assistance (cited by A. Antoshkiv) [2]. According to O. Mykhaylenko, the ability to resolve role conflicts is the ability of an individual to find a constructive model of

behavior in complex, ambiguous situations of role interaction and is related to the ability of an individual to make their own, significant choice, orient themselves to mutual understanding of the role expectations of partners in interaction [11].

*Team building* is an essential soft skill in today's information and business space as organizations look for team structures to drive further improvements in productivity, profitability and service quality. Managers and organization members everywhere are exploring ways to improve business results and profitability. Many believe that horizontal team structures are the best way to involve all employees in the success of the business. Team improvement efforts are focused on improving customer outcomes. Team building involves a wide range of activities presented to organizations and aimed at improving team performance. According to the principles of team building, employees are members of interdependent teams, not individual employees. Team building is an important factor in any environment, its focus is to specialize in realizing the team's potential, to ensure self-development, positive communication, leadership skills and the ability to work closely together as a team to solve problems (T. M. Fapohunda) [43]. While work environments are often focused on individuals and personal goals, with rewards and recognition singling out the achievements of individual employees, with team-building skills, employees can unite around a common goal to improve individual performance.

Encouraging teamwork involves creating a work culture that values collaboration, where people understand and believe that thinking, planning, decision-making and action are best implemented collaboratively.

Team building involves a process that enables a group of people to achieve their goals. It consists of such steps as clarifying the target team; identification of obstacles to achieving the goal; solving identified problems and facilitating the achievement of set goals (T. M. Fapohunda) [43].

O. Aleksandrova assigns the team a boundary place between a work group and a team, attributing to it such characteristics as "... effective constructive interpersonal interaction, strongly emphasized personal responsibility, professionalism of each employee, positive thinking and, accordingly, orientation towards the common, not the individual, success, the ability to work in a coordinated manner for a common result, disciplinary behavior, team spirit, etc." (cited by V. Gorbunova) [6, p. 21].

According to V. Gorbunova, a team is defined as a small group characterized by a positive synergy of joint consolidated activity focused on solving team tasks. The author claims that interaction on the subject of team activity is built on the principles of competence, role appropriateness and mutually shared responsibility, interpersonal relationships are significant, they contribute to a sense of psychological comfort and provide opportunities for personal growth [6].

S. Fajana claims that teamwork is the integration of resources to achieve organizational goals, where roles are defined for each member of the organization, who together accept challenges and are in constant search for solutions to problems [42]. J. R. Katzenbach and D. K. Smith point out that a team can simply be defined as a small number of people with a set of performance goals who have a commitment to a common goal and an approach for which they are mutually accountable. At the same time, all team members must be committed to achieving the team's goals, jointly responsible for their actions and the results of these actions. There are two main skills in team building: recognizing the right problems and solving them in an appropriate way and in a certain order. Team building takes many forms depending on the size and nature of the team. For example, in situations where team composition is constantly changing, emphasis is placed on developing the skills of individuals to be effective team members and attempts to change the individual's skills and abilities to work in a team or within multiple teams. However, where team membership is relatively static, as in management teams, the emphasis is put on efforts to improve relationships among team members [85].

B. Dianna argues that teamwork is a form of collective work that may imply individual tasks, but usually involves some collective task where each member contributes part of a collectively written document that is meant to reflect the collective wisdom of the group [41]. Unlike group work, which is based on sharing, teamwork is based on discussion. Discussion occurs when each member shares his or her point of view and is heard by the rest of the group. Discussion requires fairness, so that each participant's ideas are expressed and distributed in a balanced manner. This may take more time than sharing, but with practice, timing, and a few rules, groups can create fair discussions that also save time. Because tasks are usually collective, negotiation and compromise are a natural outcome of teamwork. Even though no member can get their way, the result always reflects the best

thinking and priorities of each member of the group. Teamwork can be quite effective because as a result everyone feels that his or her point of view is adequately represented and taken into account. Discussion helps identify each person's highest priorities, and negotiation and compromise help synthesize them into an outcome that reflects the group's collective priorities for success (T. Fapohunda) [43].

Team building is a process of certain constructive transformations in a small group, which lead to its formation as a team or to the transition to a higher level, at which the effectiveness of team activity increases (V. Gorbunova). According to V. Gorbunova, the main goal of team building is the creation, provision and development of such characteristics of activity, role structure of the team, personal characteristics of its participants, systems of interaction and communication, management, leadership, etc., which would lead to an increase in productivity and overall effectiveness of the team [6].

Team building has several main purposes, one of which is to improve good communication with participants both as team members and as individuals. Also, the goal of team building is to increase productivity and creativity, achieve better operational policies and procedures, which motivates team members to achieve goals, ensure clear work goals and a climate of cooperation and joint problem solving, increase the level of trust and support (T. Fapohunda) [43].

Basically, team development involves five stages, each with its own specific challenges, as suggested by B. W. Tuckman in a revision of the four-stage model he first proposed in 1965 [87]. The first stage of team formation is formation in which a group of people come together to achieve a common goal. This is followed by the storming stage, which includes disagreements about the mission, vision and approaches, and in this stage the team members get to know each other. This stage can be characterized by tense relations and conflicts. This is followed by the norming stage, in which the team consciously or unconsciously forms a working relationship that promotes progress toward the team's goals. The fourth stage is the effective stage, in which relationships, team processes, and the team's effectiveness in working toward its goals are synchronized to create a successfully functioning team. The final stage is the transformational stage, in which the team is performing so well that members believe it is the most successful team they have ever had; or an end stage where the team has accomplished its mission or goal and it is time for team members to pursue other goals or projects. The

order and timing of these stages may vary in each individual case (T. Fapohunda) [43].

J. Katzenbach and D. Smith suggest the following requirements for building an effective team: 1) it should be fairly small in the number of members; 2) there should be an adequate level of soft skills; 3) the work of the team should be aimed at achieving a truly significant goal; 4) a specific goal or goals should be set; 5) a clear approach to team work is formed; 6) there is a sense of mutual responsibility; 7) the appropriate management structure is defined [85].

These authors single out three groups of conditions for an effective team: 1) skills, in particular professional, interpersonal skills, as well as decision-making skills; 2) responsibility which should be both mutual and individual; 3) commitment (it is about a common goal, joint approaches and a specific predicted result).

Effective team functioning requires finding time, selecting team members, empowering team members, providing training in relevant skills and knowledge, developing shared goals, and facilitating team functioning, especially in the early stages of team work. Effective teams are carefully designed. When assembling a team, it is very important to consider the overall dynamics of the team.

F. M. J. LaFasto and C. E. Larson define five aspects of successful team dynamics: 1) team membership: successful teams consist of a set of effective people who have experience and the ability to solve problems, are open to problem solving and action-oriented; 2) team relationships, which are related to the ability of team members to give and receive feedback; 3) team problem solving, which means that team effectiveness depends on the level of purposefulness and clarity of team goals; 4) team leadership, since effective team management depends on leadership skills; 5) the dynamics of the organization's climate and culture, which contribute to team behavior [49].

The ultimate goal of team building is the effect of positive synergy (team effect) (V. Gorbunova) [6], (H. Lozhkin) [9], which is the most significant characteristic of team activity (R. Autrey) [34].

In the studies of foreign authors (e.g., M. Brower [81]; C. Carr [38]; F. M. J. LaFasto and C. E. Larson [49]; S. Fajana [42]) some ways of developing effective teams are suggested, among which, following T. Fapohunda [43], it is advisable to highlight the following: precision and clarity of expectations and goals of team building; perspective as the team members' understanding of the reasons for their participation in the team and

how the team fits into the organization; commitment: involves the desire of team members to participate in the work of the team and the perception of their mission as an important one; capacity (self-efficacy): to be effective, it is necessary for the team to feel that its members fit in and that its members either have the necessary knowledge, skills and abilities to solve the problems for which such groups were created, or have access to the necessary help; resources: team members must feel that the resources, strategies, and support they need to accomplish their stated mission are available, including access to resources such as money, time, equipment, technology, people, and information to do their job effectively; power: teams need decision-making authority to be effective; expansion of the team's capabilities; collaboration: team members' understanding of team dynamics and group processes; communication: effective team building involves clarity about the priority of team member tasks with an established method for teams to communicate; creative improvement; responsibility and accountability; harmonization: involves teams being synchronized by a central leadership team that helps groups get what they need to succeed; cultural change: culture: the more an organization can change its climate to support teams, the more it will be repaid for team work (cited by Zh. Bogdan) [25].

According to V. Gorbunova team building is impossible outside the context of the activity, to increase the productivity of which, in fact, a team is created, but it cannot be reduced to transformations in it. The positive synergy of joint work is an effect that is facilitated by a number of conditions related, first of all, to the specificity of relationships in teams [6].

*The ability to make self-presentation, public speaking skills, and oratorical competence* were combined into one group of communication soft skills, since their operationalization in psychological discourse is reduced to common categories that reveal ease, balance, accuracy, sufficient completeness, flexibility, and speed in expressing thoughts publicly, in front of the audience, which enables the self-disclosure of the individual and the demonstration of his/her business strengths. Persuasiveness, which becomes possible due to the emotionality of communicative self-expression and the logic of the presentation of thought, in our opinion, reveals the essence of oratorical and public speaking skills, and can be most accurately assessed in the situation of self-presentation.

Consideration of the phenomenon of *self-presentation* in foreign social psychology began more than seventy years ago. One of the first theories of

self-recording belongs to the American researcher E. Goffman, who is the author of the term "self-presentation". The scientist was the first to conduct a systematic study of self-presentation and rendered the findings in the form of a theory. E. Goffman developed a unique concept of social drama, this theory had a significant impact on the further study of self-presentation, having become a scientific basis for further scientific research. According to this concept, a person is equated with an actor, information about him enables the object of self-representation to assess the specifics of the situation, to understand what to expect from him and how to behave. In this regard, the acting role must mobilize all your forces to cause the necessary reaction. The person's behavior should be as "readable" as possible, that is, she/he must follow the traditions and norms adopted by the social group in which the situation develops independently.

R. Baumeister and A. Steinhilber believe that self-presentation is an extremely unconscious process, which allows individuals to demonstrate their inner world to others. Self-presentation, in their opinion, is aimed not only at creating a desired impression, but also at satisfying the need to demonstrate oneself to society [36].

Self-presentational behavior is any behavior aiming to create, change, or maintain an impression of oneself in the minds of others. According to this definition, whenever we try to get people to think of us in a particular way, we are engaging in self-presentation. The task of self-presentation is to make others believe that we possess different characteristics and that this profoundly affects our outcomes in life (R. Hogan, S. Briggs) [46]. A preoccupation with self-presentation leads people to engage in behaviors that enhance their look, but at the same time endanger their own physical well-being (e.g., excessive sun exposure, excessive dieting) (M. Leary, L. Tchividjian and B. Kraxberger) [53]. Therefore, presentation itself is a behavioral phenomenon that has both positive (establishing contacts, maintaining social ties, obtaining close relationships with significant others, creating a positive professional and personal image, etc.) and negative consequences (destructive behavior aimed at "improving" own image in the perception of others).

The leading function of self-presentation is to determine the nature of the social situation (E. Goffman) [83]. B. Schlenker considers self-presentation as a phenomenon that, depending on the situation, has a large arsenal of motives. In his opinion, self-presentation occurs even when relationships

between people are long-term. But at the same time, as the degree of mundaneness and awareness of the situation increases, the degree of awareness of self-presentation (B. Schlenker) [62] decreases. Similar assumptions were put forward by M. Leary, R. Kowalski [51].

Most social interactions are role-based and will be effective if the participants play their roles. This function of self-presentation was first noted by E. Goffman [83]. The author noted that social life is strictly structured: each participant in social interaction must respect and support the personality of another person. To this end, people may misrepresent themselves or otherwise refrain from expressing what they really think or feel. For example, people publicly declare that they like the gifts they receive, find another person's new clothes or hairstyle attractive, or make excuses for not being able to attend a social gathering. This type of self-presentational behavior appears to be primarily motivated by the desire to avoid social conflict and reduce tension (B. DePaulo, D. Kashy, S. Kirkendol, M. Wyer, and J. Epstein) [40].

The next function of self-presentation is receiving material and social rewards. People seek to create an impression of themselves in the minds of others in order to obtain material and social rewards (or to avoid material and social punishment). Employees tend to have a material interest in being perceived as intelligent, dedicated, and promising. To the extent that they successfully make such an impression on their employers, they tend to get promotion and pay raise. Social rewards also depend on our ability to convince others that we have certain qualities. To be liked, we need to convince others that we are likable; being a leader means convincing others that we are capable of leading. E. Jones, and J. Tedeschi notes that this type of strategic self-presentation is a form of social influence in which one person (the self-presenter) tries to gain power over another (the audience). This approach suggests that we are in a better position to influence the nature of social interaction in ways that suit our goals if we are able to control how others see us [48; 73].

Although strategic self-presentation is an expression of people's desire to manipulate how others perceive them, it does not necessarily mean that we are trying to deceive others, but instead may involve sincere attempts to draw others' attention to our (self-perceived) positive qualities. In most cases, strategic self-presentation involves "selective disclosures and omissions or

matters of emphasis and timing rather than blatant deception or pretense" [48, p. 175].

Another reason people try to create a certain impression of themselves in the minds of others is to create a distinct identity for themselves (R. Baumeister, M. Rosenberg, B. Schlenker) [36; 60; 62]. This type of self-presentational behavior serves an identification function. Convincing others that we have some quality or attribute is a way of convincing ourselves. Self-presentation is mostly initiated in order to create an identity. M. Rosenberg notes that this phenomenon is especially common in adolescence. Teenagers usually try on different identities. They adopt the clothes and mannerisms of different social types and carefully note people's reactions to these manifestations, trying to form an appropriate identity [60].

In other cases, identity is self-constructed to confirm the self-esteem that has already developed. W. Swann calls this form of self-construction "self-verification" [71], and R. Wicklund and P. Gollwitzer [78] call this behavior "self-symbolization". The need for self-affirmation is also the basis of self-construction. Most people like to think of themselves as competent, likeable, talented, etc. By convincing others that they have these positive qualities, people are better able to convince themselves. This, in turn, makes people feel better. In this sense, we can say that people seek to impress others because it makes them feel good to do so. Ultimately, self-construction through self-presentation can serve a motivational function. People are expected to be who they say they are (E. Goffman, B. Schlenker) [62; 83]. When they publicly announce their intentions or assert their identity in other ways, people are under additional pressure to meet their demands.

In many situations, our self-presentation is automatic or habitual, and we pay little conscious attention to how others perceive us. In other situations, we are acutely aware of the impressions we create and actively seek to take control of those impressions (M. Leary, B. Schlenker and M. Weigold) [50; 65].

Let's consider the factors of self-presentation. First of all, the factors of self-presentation include situational variables. Situational variables influence motivation for making an impression. The first component of self-presentation is motivational. Before we can make the desired impression, we must be motivated to do so. This motive can be triggered by several factors, particularly when the desired extrinsic reward depends on the judgment of others (R. Hogan and S. Briggs; M. Leary and R. Kowalski; B. Schlenker) [46;

51; 62]. The motivation for self-presentation diminishes when we are the focus of other people's attention. Certain stimuli such as cameras can make us aware of our public appearance because they remind us of how others see us (C. Carver and M. Scheier; M. Scheier and C. Carver) [39; 61]. Paradoxically, perhaps ignoring or avoiding others may also increase self-presentational concerns (A. Buss, 1980). The motive for active self-presentation increases when we face obstacles to creating a desired impression (B. Schlenker) [63; 64].

Familiarity with the audience is the second factor that influences the nature of self-presentation behavior (M. Leary, J. Nezlek, D. Downs et al.; D. Tice, and J. Butler et al.) [52; 76]. People tend to be more careful about the impression they make when they communicate with casual acquaintances and business associates than when they communicate with close friends, family members, and loved ones. People also tend to be more humble and genuine when they communicate with those they feel close to (especially those of the same sex) than with people they don't know well.

The third factor of actualization of self-presentation is social acuity. As soon as the motivation to make a certain impression is actualized, a person tries to understand how this impression can be created in the best way. This cognitive ability is called social acuity (R. Hogan, and S. Briggs) [46]. Social acuity relates to the ability to know what needs to be done to successfully make the desired impression. This usually involves taking other people's point of view and inferring what particular behavior creates a certain impression.

Behavioral skills are the fourth factor in successful self-presentation. People should be able to take actions that they believe will create the desired impression. Wanting to make a special impression and knowing what is required does not guarantee that a person will be able to do it. For this, the individual must be convinced that they have the opportunity to reproduce the desired behavior. Numerous tactics are used to create the desired impression. Verbal forms of behavior expression are probably the most common behavioral strategy of self-presentation. People selectively disclose, casually mention, or openly brag to make a certain impression. Non-verbal manifestations of self-presentation are also important. People make inferences about who we are by observing our manners and gestures, as well as the way we stand and walk (L. McArthur, and R. Baron) [56]. Realizing this, people actively regulate their movements to control the impressions others form.

There are several classifications of personality self-presentation. Thus, tactical self-presentation is distinguished, which aims to achieve short-term goals (S. Lee et al.) [54], while strategic self-presentation has a long course, respectively, aimed at achieving long-term goals (S. Lee et al.; B. Schlenker) [54; 66]. E. Jones and T. Pittman [47] single out five impression management strategies (self-presentation): desire to be liked (attempt to evoke benevolence), self-promotion (attempt to appear competent), intimidation (attempt to evoke fear), explanation by example (demonstrating superiority), pleading (attempt to elicit pity). In their concept, the authors are based on the suggestion that the use of one or another strategy allows the subject to control the object of self-presentation and cause a certain behavior. M. Snyder, studying self-presentation of the personality, identified two personal tendencies as its explanatory principle – high and low orientation to self-control (by self-control, the authors of the concept mean the phenomenon of self-monitoring of self-presentation and self-control of behavior in social situations) [67; 68; 69].

*Correspondence and storytelling skills (writing skills)*. An interesting attempt to operationalize the concept of storytelling skills was made in the work of A. Lugmayr with co-authors [86], where storytelling was defined as serious stories; storytelling beyond entertainment, where the story unfolds as a sequence of patterns, is striking in its quality, has a serious context, and is a thoughtful process [86, p. 20]. The authors emphasize that if storytelling is used in accordance with Bloom's system of learning outcomes or according to Ganier's nine steps of learning, then this approach helps to improve learning.

Storytelling promotes professional learning and expertise because it:

- allows you to build your own understanding or work experience in the field of content;
- promotes joint activities and work in groups;
- contributes to the organization of discussion in the classroom;
- helps to form problem-solving and critical thinking skills;
- helps learners understand complex ideas;
- promotes familiarity with new content [59].

*The ability to persuade*, according to J. Schaefer, is the art of getting others to do what you want because they want to, not because they are forced to. Operationalization of the skills of effective persuasion is possible

through the analysis of independence, manipulability and emotional stability of communicative creativity. The independence of communicative creativity is understood as the ability to adhere to one's own opinion and defend it, integrity. Manipulativeness is understood as the ability to control the interlocutor's opinion and achieve one's own goals in communication. Emotional stability is the ability to self-regulate psycho-emotional states that arise in the process of communication. So, the ability to convince others, in our opinion, is provided by such parameters of communicative creativity as the independence of the communicative position, the ability to manage the communication process and regulate one's psycho-emotional state in communication.

*The ability to negotiate* is an important soft communication skill. In the context of this approach, in 1965 for the first time R. Walton and R. Mackersey, among other types, distinguished distributive negotiations, that are based on the maximization of one's own profit, and integrative negotiations, which are the result of cooperation and involve joint problem solving and increasing joint benefits [77].

Among the main features of integrative negotiations, the following should be noted: willingness of partners to trust each other; orientation to a win-win and mutually beneficial outcome for both parties; open and shared information; the use of objective criteria for evaluating the situation which makes it possible to adopt a logical and reasonable agreement; conducting a correct discussion; the desire to jointly achieve an understanding of the needs and problems of the participants in order to build long-term relationships; attention to the interests of the parties, not to the positions. The main features of distributive negotiations are distrust of the parties to each other; the predominance of a competing position (action against each other) and a "zero-sum" position over dialogue to achieve individual goals; hiding true or reporting false information; strategic pressure, coercion; the use of manipulative tactics, open threats; obtaining a result "here and now" without taking into account the consequences of negotiations for their participants; opposition of the goals and interests of the negotiating parties up to the point of causing losses and threats.

As one of the types of communication, negotiations have a number of distinctive features: the mandatory presence of a problem due to a conflict of interests, but, as a rule, with a partial intersection of them, which determines the interdependence of the parties and the desire for a joint solution to the

problem, subject to the expectation on both sides of finding an agreement instead of open conflict. It is reasonable to assume that people who prefer one or another type of negotiation to solve their tasks have their own specific communication style in the "distributive-integrative" continuum, which is used to interact with others in order to achieve the desired results at any cost (cited by Zh. Bogdan) [25].

*The skills of intercultural interaction and communication* in the presented study are operationalized by indicators of communicative tolerance as tolerance for persons who may not share our opinion with us, acting as carriers of another culture, and indicators of awareness of international business etiquette as awareness of the need to observe the rules of politeness with representatives of other cultures. Despite the traditional opinion about interculturality as the main cause of misunderstanding among communicators, it should be noted that understanding the real causes of the problem of intercultural interaction, which lie beyond cultural differences, will provide an opportunity to overcome difficulties in communication (L. Tsze) [22].

As noted by J. Blommaert, in intercultural communication there are different communication conventions, different speech styles, narrative models, deployment of different communicative repertoires. In intercultural communication, interlocutors have a "repertoire" of various styles and combinations of styles that are deployed according to communicative needs in a changing context. People's national or ethnic affiliation may indicate the possibility of ethnic or cultural labeling in communicative behavior. However, the interaction of several different factors influences the emergence of ethnically or culturally marked aspects of communicative behavior, which are often dominated by non-cultural factors. Culture is rarely uniform, and new contexts give rise to new cultures and new forms of intercultural communication [80].

The following traits and abilities play an important role in the successful formation of intercultural interaction skills: a sense of the new, openness to new ideas; understanding the psychological state of the interlocutor; tolerance for differences, other people's opinions; empathy for speakers of a foreign language, for a foreign culture; mastery of one's emotional state, tact in communication; motivation of integration (V. Ostapenko) [29].

There are several levels of intercultural communication:

1) communication between different ethnic groups: society can consist of ethnic groups of different numbers, which form their subculture and adhere to it;

2) communication between social groups of one or another society: differences between people may arise as a result of heterogeneity of their origin, education, profession, and social status;

3) communication with people of different ages and genders;

4) communication between residents of different areas;

5) communication between representatives of different religious denominations;

6) communication in the business sphere (between representatives of various enterprises, institutions, non-profit organizations) (L. Tsze) [22]. Consideration of these aspects in communication, awareness of their importance and motivation for self-improvement in the process of intercultural interaction, in our opinion, are the basis of awareness of international business etiquette, which is a reasonable option for operationalizing the skills of intercultural interaction and communication.

## 2.2. Organization and methodology of the study of developing communication soft skills of a modern professional

At the *first stage* of the empirical research, a psychodiagnostic complex was formed to study communication soft skills of future specialists, which includes:

1. The methods of diagnosis of communicative and organizational tendencies (KOS-2) by V. Sinyavskyi and B. Fedoryshyn.

2. The test-questionnaire of communicative creativity by O. Sannikova and R. Belousova.

3. The methods of determining the social creativity of an individual by A. Batarseva.

4. The test of social intelligence by J. Guilford.

5. The methods for determining the level of role competence by O. Mykhaylenko, in particular the scale "Ability to resolve role conflicts".

6. The questionnaire on personality orientation in communication by S. Bratchenko to determine the degree of development of the dialogic style in communication.

7. The questionnaire of communicative tolerance by V. Boiko.

In addition, a number of adapted and original questionnaires were included in the methodological complex, the description of the standardization of which is given further.

Standardization of the Ukrainian version of the negotiation styles questionnaire. For the fifteen statements of the questionnaire, Cronbach's alpha statistic is 0.734, which is sufficient.

Table 2.1 shows descriptive statistics and Cronbach's alpha for the statements of the distributive negotiation style scale.

Table 2.1

**Statements of the scale "Distributive negotiation style" with an indication of their correlation coefficient with the total indicator and Cronbach's alpha values**

| Statements | Pearson's R with the sum scale | Cronbach's alpha if the item is deleted |
|---|---|---|
| 1. I never compromise my interests for the sake of another person's interests | 0.856 | 0.733 |
| 2. I try to hide information that is unfavorable and negative for me | 0.741 | 0.733 |
| 3. I prioritize solving my tasks | 0.751 | 0.731 |
| 4. I demonstrate my steadfastness in negotiations | 0.892 | 0.730 |
| 5. I steadily adhere to the position stated in the discussion, argument or debate | 0.902 | 0.729 |

Table 2.2 shows the descriptive statistics and Cronbach's alpha for the statements of the scale "Partner-oriented negotiation style".

Table 2.2

**Statements of the scale "Partner-oriented negotiation style" with an indication of their correlation coefficient with the total indicator and Cronbach's alpha values**

| Statements | Pearson's R with the sum scale | Cronbach's alpha if the item is deleted |
|---|---|---|
| 1. I try to maintain a long-term relationship with the other party of the negotiations | 0.811 | 0.731 |
| 2. I take into account the interests of the other party in a controversial issue in order to achieve mutual success | 0.841 | 0.732 |
| 3. I consider it necessary to exchange information with another party | 0.791 | 0.732 |
| 4. In a controversial issue, I try to understand the position and motives of the opponent | 0.892 | 0.730 |
| 5. I inform the other party of the negotiations of my point of view and am interested in their opinion | 0.909 | 0.729 |

Table 2.3 shows the descriptive statistics and Cronbach's alpha for the statements of the situation-oriented negotiation style scale.

Table 2.3

**Statements of the scale "Situation-oriented negotiation style" with an indication of their correlation coefficient with the total indicator and Cronbach's alpha values**

| Statements | Pearson's R with the sum scale | Cronbach's alpha if the item is deleted |
|---|---|---|
| 1. I prefer direct discussion of problems and finding a joint solution | 0.813 | 0.731 |
| 2. I believe that it is important to maintain an atmosphere of trust | 0.833 | 0.732 |
| 3. I believe that jointly reached agreements must be implemented | 0.885 | 0.732 |
| 4. I try to find a consensus or compromise in a controversial issue | 0.841 | 0.731 |
| 5. I expect that it is possible to continue the relationship with the other party in the future | 0.785 | 0.733 |

The limit values of the norm for the distributive style scale are 9 – 17 points, for the partner-oriented style they make 10 – 20 points, for the situation-oriented style they also amount to 10 – 20 points.

Standardization of the Ukrainian version of the questionnaire "Self-monitoring of self-presentation and self-control of behavior in social situations".

Carriers of high self-control (self-monitoring) consider themselves to be the most pragmatic and soft people who strive to be a convenient person for any situation in life. Entering a social situation, they try to understand what an individual who is a role model would do in it. They then use this knowledge to guide their own behavior. People with low self-control choose a different orientation: they see themselves as highly principled people who value consistency between who they are and what they do. Instead of striving to be the right person for the situation, they strive to be themselves in the social environment. Individual differences in self-monitoring of presentation behavior influence a wide range of social behaviors (M. Snyder) [68; 69].

M. Snyder developed a questionnaire (Table 2.4) to measure self-monitoring and self-monitoring behavior in public situations [67].

Table 2.4

**Statements of the questionnaire "Self-monitoring of self-presentation and self-control of behavior in social situations" with an indication of their correlation coefficient with the total score and Cronbach's alpha values**

| Statements | Pearson's R with the sum scale** | Cronbach's alpha if the item is deleted |
|---|---|---|
| 1.* I find it difficult to imitate the behavior of other people | 0.951 | 0.875 |
| 2.* My behavior is an expression of my true inner feelings, attitudes and beliefs | 0.910 | 0.874 |
| 3.* At parties and social events, I don't try to do or say things to please others | 0.843 | 0.875 |
| 4.* I can argue only those ideas in which I already believe | 0.852 | 0.873 |
| 5. I can give impromptu speeches even on topics about which I have almost no information | 0.895 | 0.872 |
| 6. I think I put on a show to impress or entertain people | 0.986 | 0.875 |
| 7. When I'm not sure how to act in a social situation, I look at the behavior of others for cues | 0.921 | 0.876 |
| 8. I would probably make a good actor | 0.897 | 0.875 |
| 9.* I rarely ask my friends for advice on movies, books or music | 0.914 | 08.74 |
| 10. Sometimes it seems to others that I feel deeper emotions than I really do | 0.963 | 0.875 |
| 11. I laugh more when I watch a comedy with others than when I'm alone | 0.951 | 0.873 |
| 12.* I am rarely the focus of attention in a group of people | 0.752 | 0.875 |
| 13. In different situations and with different people, I often behave like a completely different person | 0.974 | 0.874 |
| 14.* I am not very good at pleasing other people | 0.9 12 | 0.873 |
| 15. Even if I'm not having fun, I often pretend I'm having a good time | 0.973 | 0.875 |
| 16. I am not always who I seem | 0.902 | 0.874 |
| 17.* I would not change my opinion or behavior to please someone else or gain favor | 0.925 | 0.875 |
| 18. I thought of becoming an actor | 0.856 | 0.873 |
| 19. In order to be liked, I tend to be what people expect me to be, not just anyone else | 0.875 | 0.875 |
| 20.* I have never been strong at games like charades or improvisation | 0.962 | 0.875 |
| 21.* I find it difficult to change my behavior to suit different people and different situations | 0.745 | 0.875 |
| 22.* At a party, I let others joke and tell stories | 0.821 | 0.875 |
| 23.* I feel a little uncomfortable in company and I don't look as good as I should | 0.796 | 0.874 |
| 24. I can look anyone in the eye and lie with a straight face | 0.854 | 0.875 |
| 25. I can fool people into being friendly when I really don't like them | 0.745 | 0.874 |

* Reverse statements.

** Data for reverse statements were converted for correlation analysis.

Compared to people with low self-control, people with high self-control:

- pay more attention to the behavior of others in social situations;
- prefer to enter situations that provide clear guidelines for behavior;
- are more attracted to careers that emphasize the importance of social behavior, such as acting, sales, and public relations;
- are better able to read other people's facial expressions;
- better convey a wider range of emotions;
- demonstrate less correspondence between the attitudes and behavior in society that underlie them (J. Brown) [82].

Table 2.5 shows the different orientations of people with high and low levels of self-monitoring with respect to the three components of self-presentation. People with high self-control are social chameleons. They enjoy being different people in different situations, and they have the cognitive and behavioral skills necessary to fulfill many roles. In contrast, people with low self-monitoring think of themselves as highly principled individuals who value being "true to themselves" in various situations. They also have a somewhat worse understanding of the nature of the social situation, and their acting skills are less developed (J. Brown) [82].

Table 2.5

**Comparative characteristics of self-presentation of individuals with high and low self-monitoring and self-control of behavior in social situations** [82]

| Indicators of self-presentation | High self-monitoring | Low self-monitoring |
|---|---|---|
| Goals | Be right for the situation | Be yourself in any situation |
| Social acuity | High skill in reading the situation and behavior of others, being able and willing to use this knowledge to build a prototype role model for the given situation | Less adept at reading the situation and behavior of others. Behavior is based on personal attitudes, values and dispositions |
| Acting abilities | Unsurpassed acting skills allow them to change their behavior according to the demands of the situation | Limited acting skills lead them to play the same roles in different situations |

All 25 statements of M. Snyder's questionnaire were translated into Ukrainian and evaluated by expert linguists with psychological education. The

instructions for the questionnaire provided for the use of a 5-point Likert scale.

As a result of checking the single-moment reliability of the questionnaire on a sample of 453 people (the sample is evenly represented by gender and age from 18 to 61 years), a standardized Cronbach's alpha value of $\alpha = 0.876$ was obtained. All questionnaire items are suitable for inclusion in the final version of the questionnaire (see Table 2.1).

As a result of the analysis of descriptive statistics for the general indicators of self-monitoring of self-presentation and self-control of behavior in social situations (Table 2.6), the marginal values of the norm, which are 40 – 95 points, were obtained.

Table 2.6

**Descriptive statistics of the general index of self-monitoring of self-presentation and self-control of behavior in social situations**

| Indicators | Min | Max | Mean | Std. dev. |
|---|---|---|---|---|
| Self-monitoring of self-presentation and self-control of behavior in social situations | 25 | 125 | 67.53 | 27.54 |

The discriminant validity of the methods was checked through the use of correlation analysis of indicators of self-monitoring of self-presentation and self-control of behavior in social situations and indicators of social intelligence test by J. Guilford. Positive relationships were determined with all indicators of four subtests, in particular, the ability to predict the consequences of behavior ($r = 0.567$, $p < 0.0001$), the ability to correctly assess people's states, feelings, intentions based on their non-verbal expressions, facial expressions, postures, gestures ($r = 0.671$, $p < 0.0001$), the ability to understand verbal expression ($r = 0.789$, $p < 0.0001$) and the ability to recognize the structure of interpersonal situations in dynamics ($r = 0.593$, $p < 0.0001$).

A high test-retest reliability of the method was determined due to a repeated diagnosis in an interval of 2 months ($r = 0.873$, $p < 0.0001$).

Thus, self-presentation should be understood as a more or less conscious behavioral manifestation of personality, aimed at creating a desired impression and satisfying the need to demonstrate oneself to society through the ability to create, change and maintain impressions about oneself in the minds of others.

The operationalization of the phenomenon of self-presentation becomes possible through the analysis introduced by M. Snyder's concept of self-

monitoring of self-presentation and self-control of behavior in social situations. The presented construct can be diagnosed through the use of the appropriate methodology, 25 statements of which have been translated into Ukrainian. Standardization of the methodology showed its high validity and reliability.

Students were offered a test to assess their *storytelling skills.* Respondents randomly chose one of 36 dramatic situations proposed by the French writer G. Polti [33]. For example: 1) Brave attempt: Daredevil, Object of the attempt, Adversary. The Daredevil sets out to achieve something that seems difficult or impossible; 2) Kidnapping: Kidnapper, Kidnapped, Guard/Hinder. The Kidnapper steals someone/something, but a Guard or an Obstacle stands in his way; 3) Mystery: Questioner, Seeker, Problem. The Questioner presents the Seeker with a Problem that he must solve. Next, the testees wrote a script (the main plot) of their own story based on the situation they received. The content analysis of the texts was carried out according to the scheme:

1) "Insufficiency of the presentation (the text is too small in scope to be clear and fully reflect the course of events) – Completeness (the text is sufficiently complete in scope, the main plot is optimally laid out) – Redundancy (the text contains redundant details, branches in the plot)". This criterion provides 1 – 3 – 2 points, respectively;

2) "Diffusiveness of the communicative intention (schematic presentation, incomprehensibility) – Accuracy and comprehensibility of the communicative intention (the text accurately reflects the author's opinion, its purpose is clear) – Excessive detail in the presentation of the communicative intention (the text is overloaded with detail, which hinders the understanding of its purpose)". According to this criterion, 1 – 3 – 2 points are respectively provided;

3) "Triviality and banality (the text reflects stereotypical or well-known stories and plots, it is uninteresting) – Simplicity (the text contains a simple but understandable story) – Originality (the text is unique in content, contains elements of humor or artistic expressive techniques)". According to this criterion, 1 – 2 – 3 points are respectively provided.

Therefore, the minimum number of points for the test is 3, the maximum is 4.

In order to study the *awareness of international business etiquette*, a questionnaire was created, which makes it possible to determine the measures of awareness of the expediency to take into account the rules of communication with the interlocutor, who is a representative of another culture.

Table 2.7 shows Cronbach's alpha statistics and correlations of each questionnaire item with the total scale. Cronbach's alpha statistic is 0.854, which is sufficient.

Table 2.7

**Statements of the questionnaire "Awareness of international business etiquette" with an indication of their correlation coefficient with the total score and Cronbach's alpha values**

| Statements | Pearson's R with the sum scale** | Cronbach's alpha if the item is deleted |
|---|---|---|
| 1. For effective communication with others, I take into account the interlocutor's belonging to a certain ethnic group | 0.745 | 0.852 |
| 2. For effective communication with others, I take into account the social status and belonging to a certain culture of the interlocutor | 0.944 | 0.852 |
| 3. For effective communication with others, I take into account the educational and professional status of a business partner from another country | 0.844 | 0.852 |
| 4. For effective communication with others, I take into account the age of a partner from another country | 0.832 | 0.853 |
| 5. For effective communication with others, I take into account the gender of a partner from another country | 0.855 | 0.852 |
| 6. For effective communication with others, I take into account the area in which the interlocutor lives | 0.952 | 0.851 |
| 7. For effective communication with others, I take into account the religious affiliation of the interlocutor | 0.923 | 0.852 |
| 8. For effective communication with others, I take into account the job status of a partner from another country | 0.899 | 0.851 |
| 9. I try to be tolerant of the interlocutor, even if I do not share his/her values, beliefs and behavior caused by belonging to another culture | 0.901 | 0.851 |
| 10. I try to be tolerant of the interlocutor, even if I do not share the cultural traditions of their people | 0.903 | 0.852 |

The limit values of the norm for the indicator of awareness in international business etiquette are 4 – 8 points.

At the *second stage* of the research, a comparative analysis of the level of developing communication skills of students in specialty 05 "Social and

Behavioral Sciences" with future professionals in the technical field was carried out. For this purpose, data processing was carried out according to the Kruskal-Wallis test (H-test). In addition, the factor of success in the education of students of various specialties was taken into account in the analysis of the level of communication soft skills development (using two-factor variance analysis).

At the *third stage*, a correlation analysis of indicators of future specialists' soft skills was carried out according to the Pearson criterion.

At the *fourth stage*, a program for the development of communication soft skills was implemented, taking into account the specifics of their future profession.

At the *fifth stage*, a comparison of indicators of communication soft skills of professionals of various specialties was carried out during their studies at higher education institutions through the analysis of the results of a longitudinal study, which was implemented during 2021 – 2024.

## 2.3. Comparative analysis of communication soft skills of future professionals of various specialties

The first task of the empirical study of communication soft skills was to compare the level of their development with students of different educational profiles.

Table 2.8 shows the differences in the level of development of verbal and non-verbal communication skills among students of various specialties.

Table 2.8

**Indicators of verbal and non-verbal communication skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Communication skills | 9.82 ± 4.78 | 16.08 ± 1.68 | 11.50 ± 1.67 | 11.00 ± 1.09 | 6.90 ± 4.36 | 40.86 |
| Ease | 29.49 ± 5.67 | 38.12 ± 4.16 | 29.75 ± 3.84 | 32.17 ± 5.27 | 24.00 ± 4.71 | 44.58 |
| Communication competence | 30.43 ± 5.04 | 37.76 ± 3.68 | 24.83 ± 3.07 | 26.67 ± 3.33 | 25.64 ± 5.61 | 55.92 |

The highest level of communicative abilities and aptitude was determined among future psychologists, whereas students of technical specialties had the lowest indicators. In general, future political scientists and sociologists have indicators of communicative aptitude expressed at an average level, and future economists – at a lower than average level. So, the professional focus is related to the level of focus on communication, which is more typical of the helping profession of a psychologist, which is focused on interaction with people and communicative activity. Among representatives of the technical profile, the focus on communication and the ability to implement it is weakly expressed, since representatives of this profile of training master another type of profession – "Man – Sign", while other professions belong to the "Man – Man" type and are more oriented to communication.

The ease of communicative creativity as the ability to quickly and easily initiate communication, in particular with strangers, to switch to different topics of conversation, to be a pleasant interlocutor, is also characteristic of future psychologists to a greater extent. Students of other specialties have an average level of communicative ease.

Communication competence as awareness of different options for conducting conversations and negotiations, knowledge of different styles and methods of effective communication is also characteristic of future psychologists.

Table 2.9 shows differences in the level of development of social intelligence and social creativity among students of various specialties.

Table 2.9

**Indicators of socio-communicative skills (social intelligence and creativity) with students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Subtest 1 | 8.20 ± 2.21 | 11.20 ± 1.83 | 8.33 ± 1.50 | 7.83 ± 0.75 | 3.64 ± 1.36 | 50.68 |
| Subtest 2 | 7.37 ± 1.97 | 9.68 ± 1.68 | 7.92 ± 1.68 | 7.33 ± 1.37 | 4.73 ± 1.85 | 34.33 |
| Subtest 3 | 8.09 ± 2.45 | 10.76 ± 1.09 | 8.00 ± 2.56 | 6.67 ± 1.75 | 4.00 ± 1.67 | 45.24 |
| Subtest 4 | 6.14 ± 1.94 | 9.32 ± 1.95 | 7.25 ± 1.54 | 5.50 ± 1.05 | 3.82 ± 1.78 | 42.59 |
| Social creativity | 103 ± 13.26 | 113.40 ± 15.30 | 102.66 ± 13.75 | 110.16 ± 9.62 | 87.09 ± 13.84 | 23.48 |

Students-psychologists are better at predicting the consequences of behavior than representatives of other majors. Perspective psychologists are able to predict the future actions of people based on the analysis of real

situations of communication (family, business, friendship), to predict events based on understanding the feelings, thoughts, and intentions of the communication participants. Their predictions can turn out to be wrong if they deal with people who behave in the most unexpected, atypical ways. Future psychologists are able to clearly develop a strategy of their own behavior to achieve the set goal. Future economists and sociologists generally have a sufficient level of orientation in the non-verbal reactions of interacting participants and sufficient awareness of norm-role models and rules governing people's behavior. Future specialists in technical specialties generally have a poorer understanding of the relationship between behavior and its consequences. Students of technical professions can often make mistakes (in particular, illegal actions), get into conflicting and possibly dangerous situations because they incorrectly imagine the results of their actions or the actions of others. Future politologists are a bit better than future specialists in a technical profile orient themselves in generally accepted norms and rules of behavior.

Future psychologists are better than other candidates able to correctly assess people's states, feelings, intentions based on their non-verbal expressions, facial expressions, postures, and gestures. They attach great importance to non-verbal communication, pay a lot of attention to non-verbal reactions of communication participants. Sensitivity to non-verbal expression significantly enhances the ability to understand others. On the other hand, future specialists in technical specialties do not have a good command of the body language, looks and gestures, which is mastered earlier in ontogeny and causes more trust than verbal language. In communication, such people focus more on the verbal content of messages. Technical students may make mistakes in understanding the meaning of the interlocutor's words because they do not take into account (or incorrectly take into account) the non-verbal reactions that accompany them.

Future psychologists have a high sensitivity to the nature and nuances of human relationships, which helps them quickly and correctly understand what people say to each other (speech expression) in the context of a certain situation and specific relationships. According to the indicators of the third subtest of social intelligence, they exceed other achievers, therefore they are more able to find the appropriate tone of communication with different interlocutors in different situations and have a large repertoire of role behavior (that is, they show role plasticity). Future technical professionals, compared to other students, do not recognize the various meanings that the same verbal

messages can acquire depending on the nature of people's relationships and the context of the communication situation. They can "speak randomly" and make mistakes in the interpretation of the interlocutor's words.

Future psychologists, more than other students, are able to recognize the structure of interpersonal situations in dynamics. They are better able to analyze complex situations of human interaction, understand the logic of their development, feel a change in the meaning of the situation in case of inclusion of different participants in the communication. Through logical inferences, future psychologists can more easily complete the unknown links that are missing in the chain of these interactions, predict how a person will behave in the future, and search for the reasons for certain behavior. Future technical professionals more often than not experience difficulties in analyzing situations of interpersonal interaction and, as a result, do not adapt well to various types of relationships between people (family, business, friendship, and others).

The lowest indicators of social creativity were found among representatives of technical professions who have difficulties in solving non-standard complex situations of social interaction. Instead, other students are characterized by a sufficiently high level of social creativity.

Table 2.10 shows the differences in the level of development of team-building and organizational skills among students of various specialties.

Table 2.10

**Indicators of team-building and organizational skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Team-building competence | 39.94 ± 7.66 | 87.88 ± 16.67 | 66.75 ± 12.01 | 67.33 ± 20.31 | 44.09 ± 5.02 | 68.01 |
| Organizational abilities | 11.60 ± 4.11 | 15.32 ± 1.72 | 9.33 ± 1.55 | 7.66 ± 2.33 | 8.09 ± 4.15 | 39.83 |

The skills of team building as the ability to gather people to perform a certain task, the ability to build team interaction, work in a team of like-minded people and contribute to the effective operation of teams are characteristic of future psychologists, one of the leading professional functions of which is the organization of training and group work of people. Representatives of technical specialties and future economists have poorly developed teamwork

and team-building skills, which can negatively affect their professional ability to work together with others on work projects.

Organizational skills and inclinations as the ability to manage the joint activities of other people are more developed with future psychologists, while with future politologists they are expressed the worst in the sample.

Table 2.11 shows the differences in the level of development of self-presentation skills among students of various specialties.

Table 2.11

**Indicators of self-presentation skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Self-monitoring of self-presentation and self-control of behavior in social situations | 67.62 ± 27.41 | 105.64 ± 13.78 | 64.00 ± 5.47 | 70.66 ± 10.83 | 39.81 ± 6.36 | 49.27 |
| Self-presentation | 28.94 ± 4.36 | 33.32 ± 3.30 | 24.00 ± 4.02 | 21.33 ± 2.42 | 24.18 ± 6.66 | 39.18 |

Indicators of the ability to monitor one's own self-expression and self-manifestation when meeting other people are higher among future psychologists, while among those who acquire technical specialties, they are the lowest. The average level of self-monitoring of self-presentation and self-control of behavior in social situations is characteristic of future economists, sociologists, and politologists. Therefore, psychologists most fully possess the skills of self-presentation in social interaction. Future specialists in technical specialties have difficulties in regulating the process of self-presentation, which is determined by excitement and low self-control in situations of self-presentation – meeting new people, public speeches in front of an unfamiliar audience.

Comparison of the indicators of self-presentation of communicative creativity showed that these indicators predominate among future psychologists, while the indicators of the ability to more vividly and creatively demonstrate oneself in communication are expressed more weakly among other students.

Table 2.12 shows differences in the level of development of intercultural interaction skills among students of various specialties.

Table 2.12

**Indicators of intercultural interaction and communication skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Communicative intolerance | 48.45 ± 22.00 | 57.00 ± 8.80 | 84.25 ± 18.47 | 79.50 ± 16.13 | 39.81 ± 6.36 | 29.30 |
| Knowledge of international business etiquette | 6.97 ± 2.50 | 5.92 ± 1.57 | 3.08 ± 2.15 | 3.33 ± 1.63 | 4.45 ± 2.73 | 27.88 |

Tolerance in communication, tolerance for a different opinion, endurance in communication with carriers of a different worldview is characteristic to a greater extent of future specialists of a technical profile, economists and, for the most part, psychologists, on the other hand, future politologists and sociologists are determined by intolerance of others in situations of interaction and communication.

Knowledge of international rules of behavior and etiquette, awareness of the rules of courtesy and the ability to show respect for representatives of other cultures are characteristic of future economists and psychologists. Other students are less knowledgeable about international business etiquette.

Table 2.13 shows the differences in the level of development of speaking and writing skills among students of various specialties.

Table 2.13

**Indicators of oratorical and writing skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Storytelling and correspondence skills | 6.68 ± 2.11 | 9.96 ± 1.51 | 4.08 ± 1.67 | 6.50 ± 3.83 | 6.63 ± 2.73 | 39.80 |
| Expressiveness of communicative creativity | 30.86 ± 4.07 | 37.84 ± 4.34 | 25.50 ± 3.61 | 27.67 ± 9.44 | 30.45 ± 6.25 | 39.63 |

Writing skills, manifested in the knowledge of business correspondence rules and the ability to compose bright and convincing stories that reveal the

communicative intention of the communicator, are characteristic mainly of future psychologists. Other students have an average level of storytelling and correspondence skills, and future sociologists have a low level of these skills.

Expressiveness of communicative creativity as the ability to clearly and accurately express an opinion, to speak publicly, to use the entire arsenal of non-verbal expressiveness, artistry is characteristic to a greater extent of future psychologists. Other students are characterized by a moderate level of expressiveness of speech.

Table 2.14 shows differences in the level of development of conflict resolution skills among students of various specialties.

Table 2.14

**Indicators of conflict resolution skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Ability to resolve role conflicts | 24.57 ± 10.09 | 35.40 ± 6.71 | 24.83 ± 2.72 | 30.50 ± 6.79 | 16.18 ± 5.26 | 37.85 |
| Dialogicity | 6.00 ± 5.03 | 14.92 ± 4.05 | 1.58 ± 2.27 | 2.82 ± 3.43 | 2.07 ± 1.07 | 42.09 |
| Conflictness | 30.51 ± 3.00 | 25.92 ± 3.33 | 25.08 ± 2.91 | 25.33 ± 3.27 | 29.91 ± 5.39 | 34.13 |

The ability to resolve role conflicts as an indicator of role competence, which is responsible for the ability to choose roles necessary for reconciliation and resolution of acute conflict situations of interpersonal interaction, is developed to a greater extent among future psychologists. The ability to resolve conflicts is weakest among representatives of technical specialties, and at an average level among other students.

Dialogicity as a style of communication, which implies respect for the interlocutor and the focus on finding common points of view, mutually beneficial ways of solving conflict situations, is more characteristic of future psychologists. Future economists sometimes choose this style of communication in interpersonal interaction, but other students hardly have this style of interaction.

Conflict as an indicator of communicative creativity, characterized by a belligerent and opportunistic position in communication, the desire to insist on one's own point of view in communication, is characteristic to a greater extent of future economists, among other students, conflictness is manifested at an average level.

Table 2.15 shows the differences in the level of development of persuasion skills among students of various specialties.

Table 2.15

**Indicators of persuasion skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Independence | 29.14 ± 4.58 | 33.04 ± 3.34 | 25.08 ± 2.19 | 25.83 ± 3.71 | 23.82 ± 3.60 | 39.45 |
| Emotional stability | 29.69 ± 5.18 | 31.76 ± 3.28 | 30.83 ± 3.21 | 31.33 ± 2.88 | 25.36 ± 5.94 | 8.58 |
| Manipulativeness | 29.97 ± 5.32 | 30.00 ± 4.27 | 32.58 ± 3.00 | 25.83 ± 4.71 | 31.91 ± 4.61 | 9.06 |

The independence of communicative creativity as the ability to defend one's own position, steadfastness and principled views, which provides a balanced and unwavering line of evidence in convincing others, is characteristic to a greater extent of future psychologists. Directiveness and independence in communication are to a lesser extent characteristic of other students, especially future specialists of a technical profile.

The emotional stability of communicative creativity, which ensures sufficient self-regulation of states in communication, the ability not to go astray and not to be emotionally confused in the situation of presenting arguments and counterarguments during debates or in the process of persuading another, is characteristic of all students to the same extent, although students of a technical profile are inferior in this skill to psychologists.

The manipulativeness of communicative creativity is equally expressed with all students. Therefore, all students, mostly at a moderate level, have the ability to control the opinion of others in communication, to influence them, to use the interlocutor for their own purposes.

Table 2.16 shows differences in the level of development of negotiation skills among graduates of various specialties. Distributive style of conducting negotiations, characterized by mistrust towards the interlocutor or opponent, predominance of a competitive position in communication, low parity and dialogicity in debates and disputes, concealment of true or rendering false information, strategic pressure on the interlocutor, use of coercion, use of manipulative tactics, open threats, obtaining a result "here and now" without taking into account the consequences of negotiations for their participants, opposing the goals and interests of the negotiations to the point of causing

losses and threats, is characteristic to a greater extent of future psychologists and economists. Future politologists rarely turn to this style of negotiation.

Table 2.16

**Indicators of negotiation skills of students of various specialties**

| Indicators | Groups of testees | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialties | |
| Distributive style | 18.00 ± 2.75 | 18.88 ± 2.26 | 19.75 ± 2.59 | 13.83 ± 6.01 | 16.82 ± 3.31 | 44.42 |
| Focus on the partner | 9.09 ± 2.29 | 19.04 ± 2.40 | 19.33 ± 2.22 | 19.66 ± 1.03 | 7.73 ± 1.48 | 67.50 |
| Orientation to the situation | 9.20 ± 2.31 | 16.08 ± 1.68 | 11.50 ± 1.67 | 20.00 ± 1.09 | 8.27 ± 1.79 | 66.89 |

Orientation towards a partner in negotiations as well as towards the situation is the least characteristic of technical students. Therefore, technical students have the lowest willingness to trust the interlocutor, have an attitude towards a losing and disadvantageous result for both parties, are closed in their position, are biased in assessing the situation, have difficulties in building a discussion, do not seek to understand the needs and problems of the opponent and to build a long-term relationship, indifferent to the interests of the parties.

Fig. 2.1 shows that indicators of team creative competence are weakly dependent on the level of academic success. Only among future psychologists who are successful in their studies, these indicators prevail over unsuccessful ones.

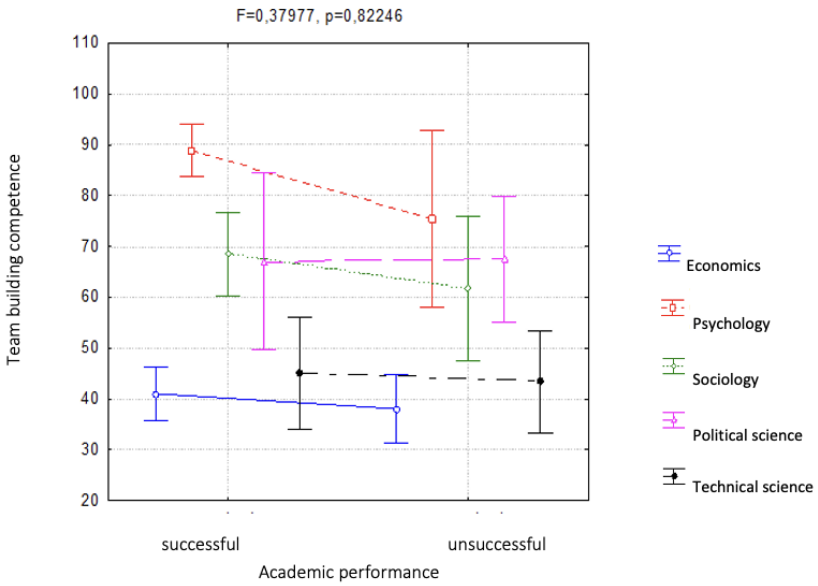


Fig. 2.1. **Indicators of team-building competence among students of various specialties depending on the level of academic performance**

Fig. 2.2 shows that indicators of organizational abilities are weakly dependent on the level of academic performance of future specialists.

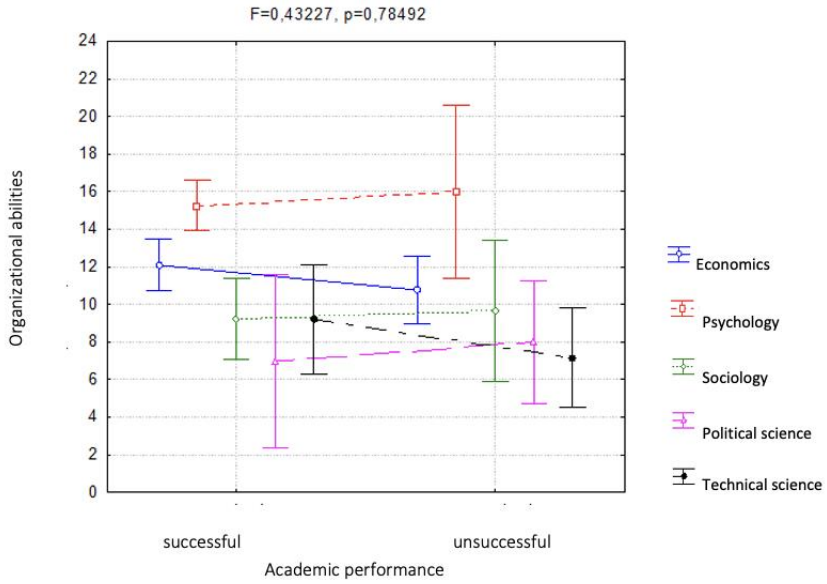


Fig. 2.2. **Indicators of organizational abilities of students of various specialties depending on the level of academic success**

Fig. 2.3 shows that the indicators of communicative abilities are weakly dependent on the level of academic performance of future specialists.

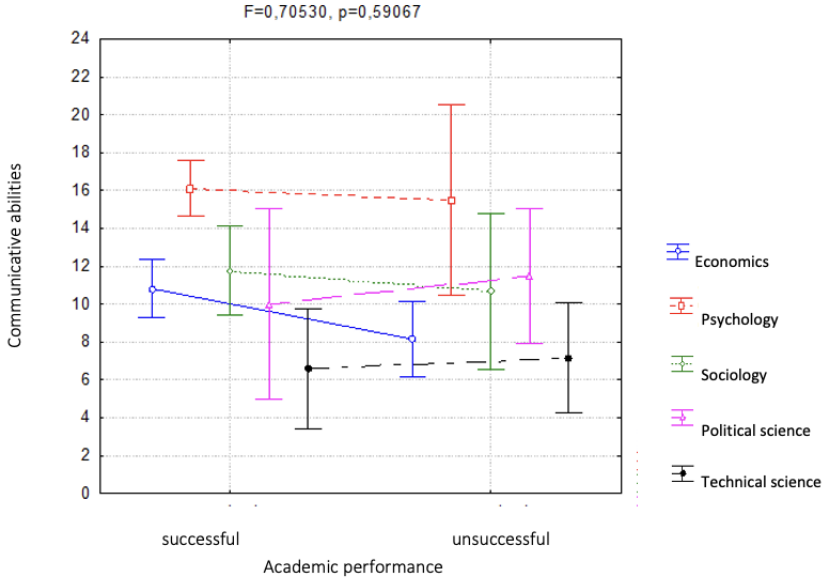


Fig. 2.3. **Indicators of communicative abilities of students of various specialties depending on the level of academic performance**

Fig. 2.4 shows that indicators of the ease of communicative creativity are weakly dependent on the level of academic performance of future

specialists, however, with high academic performance, future psychologists have a higher ease of communication.

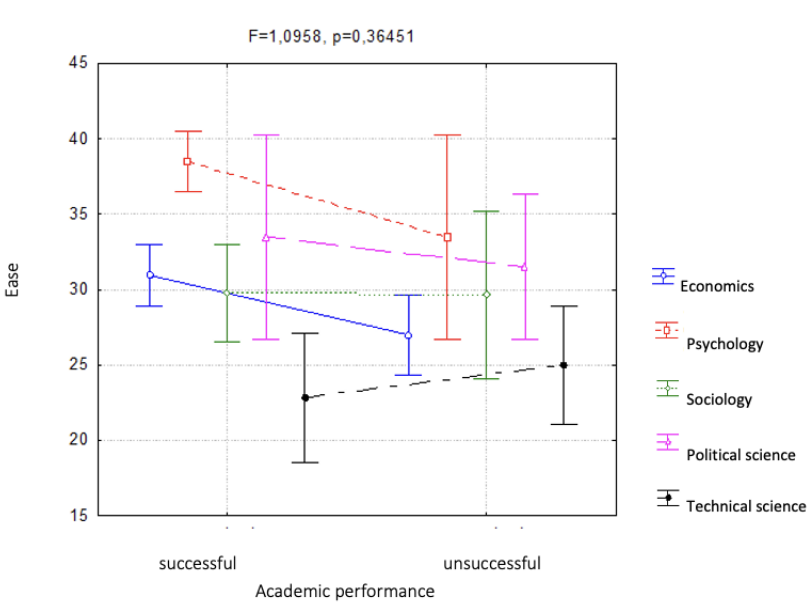


Fig. 2.4. **Indicators of ease of communicative creativity among students of various specialties depending on the level of academic performance**

Fig. 2.5 shows that indicators of communicative competence weakly depend on the level of academic performance of future specialists.

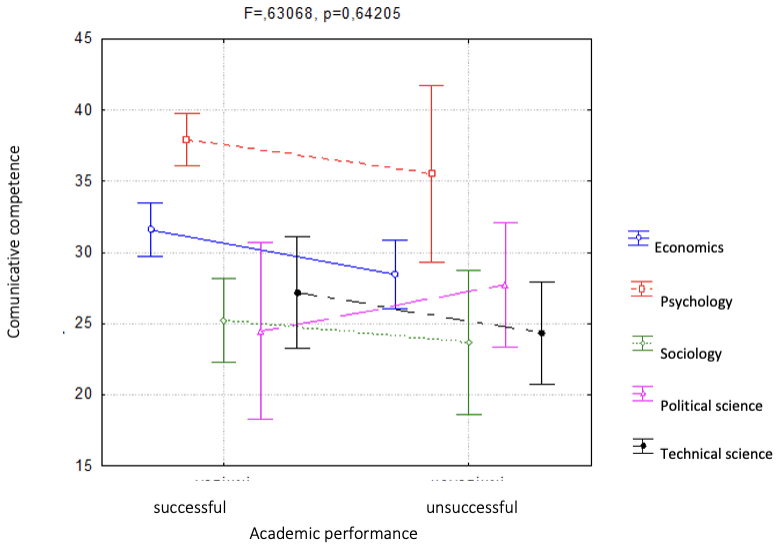


Fig. 2.5. **Indicators of communicative competence of students of various specialties depending on the level of academic performance**

Fig. 2.6 shows that indicators of social creativity are weakly dependent on the level of academic performance of future specialists.

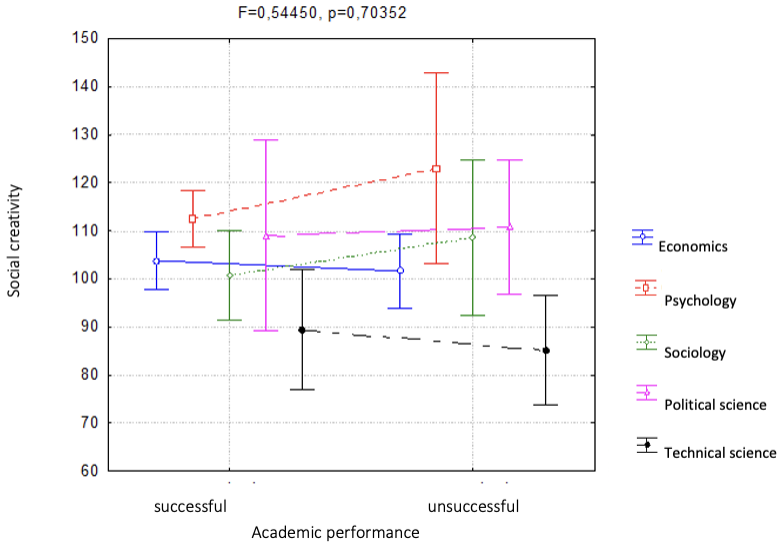


Fig. 2.6. **Indicators of social creativity of students of various specialties depending on the level of academic performance**

Fig. 2.7 shows that the indicators of the factor of knowledge of the behavior results are the highest among future psychologists with high academic performance.

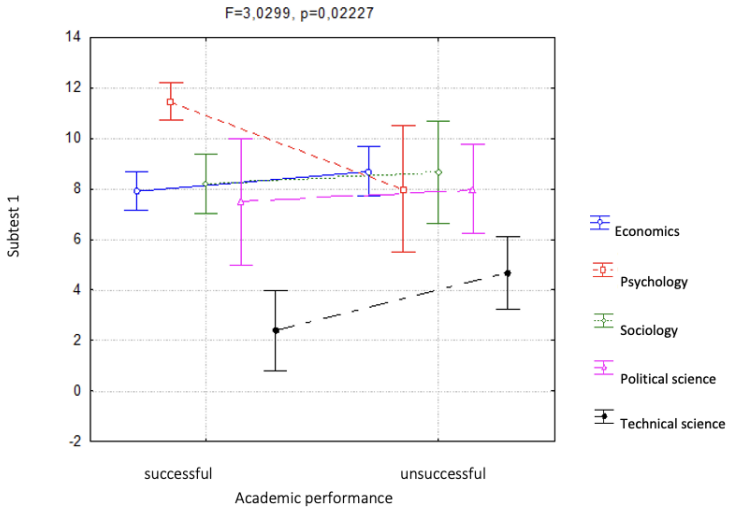


Fig. 2.7. **Indicators of the factor of knowledge of the results of the social intelligence behavior of students of various specialties depending on the level of academic performance**

From Fig. 2.8 it can be seen that indicators of the factor of knowledge of social intelligence behavior classes weakly depend on the level of academic performance of future specialists.

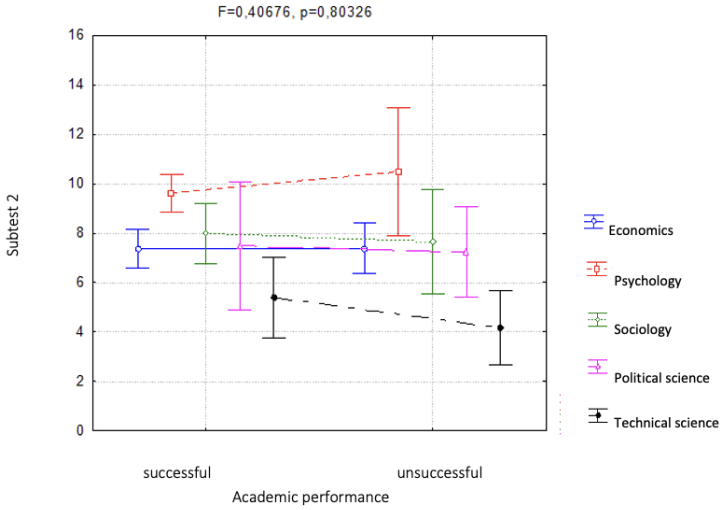


Fig. 2.8. **Indicators of the factor of knowledge of social intelligence behavior classes of students of various specialties depending on the level of academic success**

From Fig. 2.9 it can be seen that the indicators of knowledge of transformations of social intelligence behavior weakly depend on the level of academic performance of future specialists.

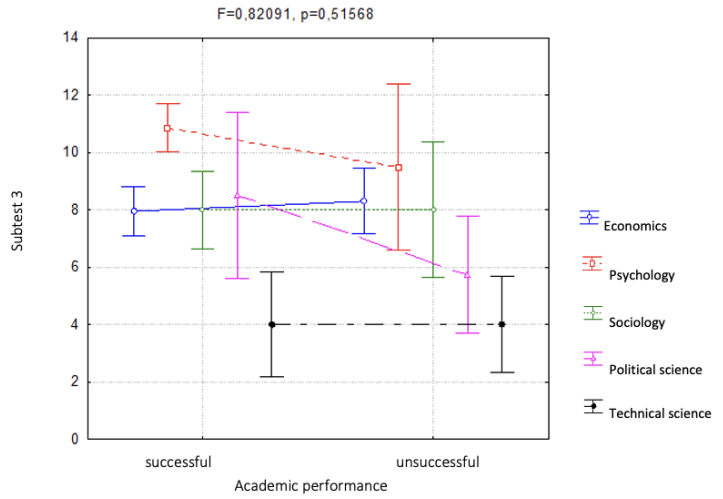


Fig. 2.9. **Indicators of knowledge of transformations of social intelligence behavior of students of various specialties depending on the level of academic success**

From Fig. 2.10 it can be seen that the indicators of knowledge of social intelligence behavioral systems weakly depend on the level of academic success of future specialists, but among future psychologists with good academic performance they are the highest in the sample.

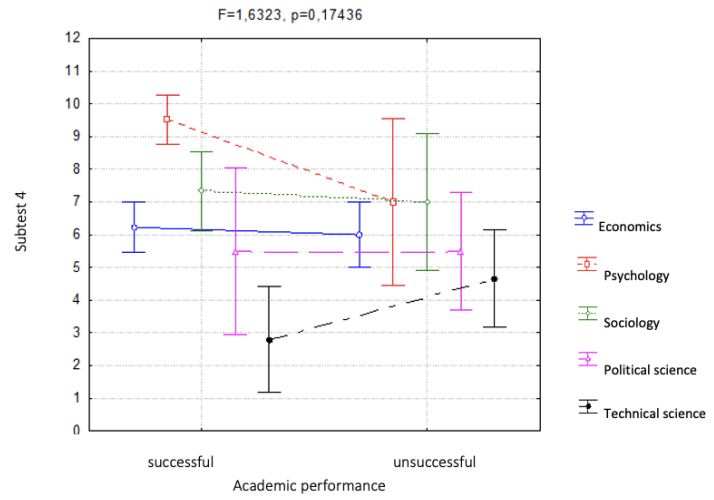


Fig. 2.10. **Indicators of the factor of knowledge of social intelligence behavioral systems among students of various specialties depending on the level of academic performance**

Fig. 2.11 shows that indicators of self-monitoring of self-presentation and behavior self-control in social situations are weakly dependent on the level of academic performance of future specialists, but they are the highest in the sample of academically successful future psychologists.

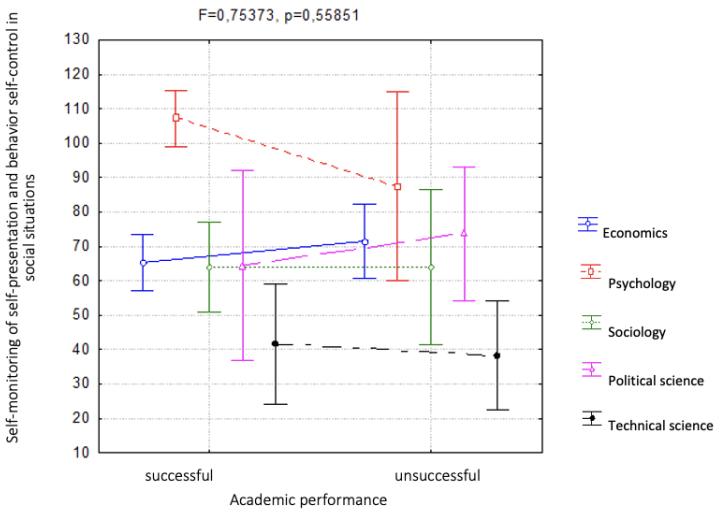


Fig. 2.11. **Indicators of self-monitoring of self-presentation and behavior self-control in social situations among students of various specialties depending on the level of academic performance**

Fig. 2.12 shows that indicators of self-presentation of communicative creativity weakly depend on the level of academic performance of future specialists.

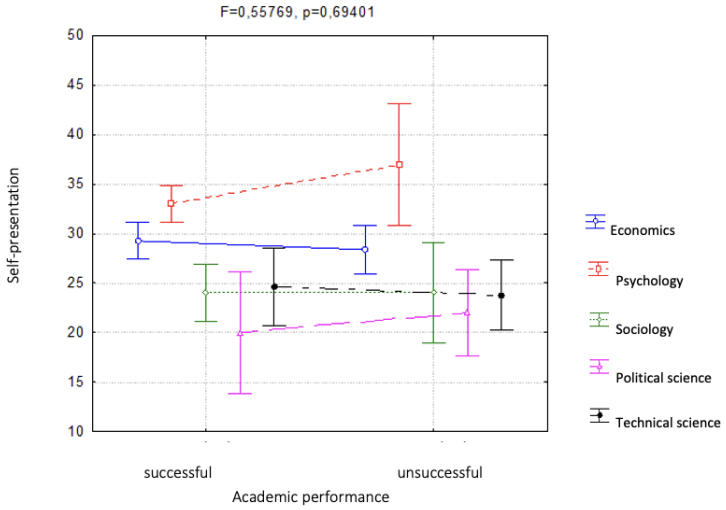


Fig. 2.12. **Indicators of self-presentation of communicative creativity among students of various specialties depending on the level of academic performance**

The lowest indicators of the ability to resolve role conflicts were found among future technical professionals with poor academic performance (Fig. 2.13).

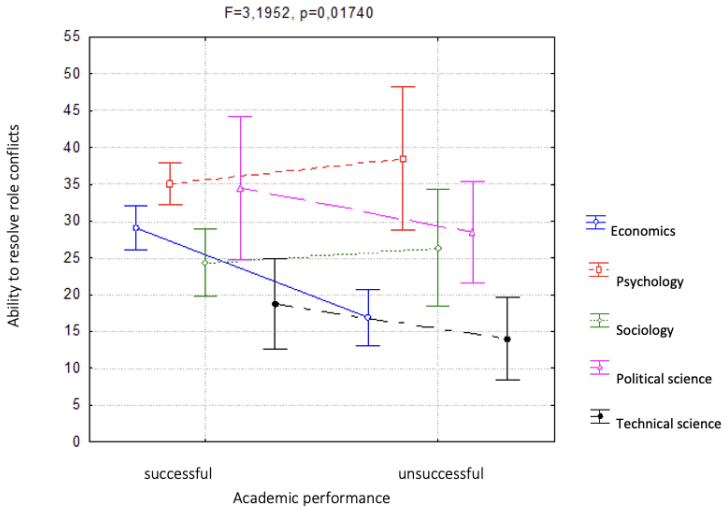


Fig. 2.13. **Indicators of the ability to resolve role conflicts among students of various specialties depending on the level of academic performance**

The highest indicators of dialogic orientation in communication were found among future psychologists and they do not depend on the level of their academic performance (Fig. 2.14).

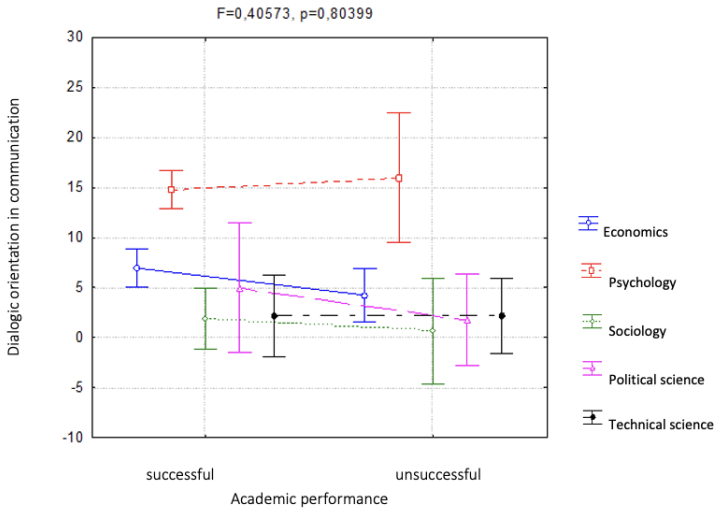


Fig. 2.14. **Indicators of dialogic orientation in communication among students of various specialties depending on the level of academic performance**

The highest indicators of the conflictness of communicative creativity were found among future technical specialists and they are higher with successful academic performance (Fig. 2.15).

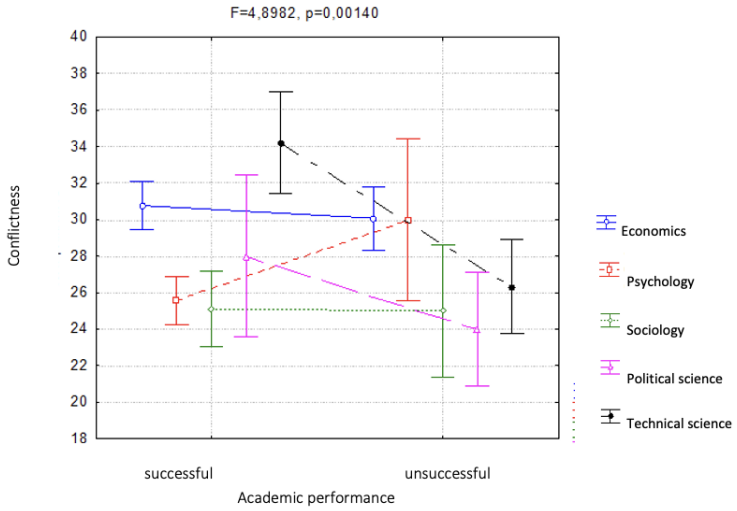


Fig. 2.15. **Indicators of communicative creativity conflictness among students of various specialties depending on the level of academic performance**

Fig. 2.16 shows that indicators of independence of communicative creativity are weakly dependent on the level of academic performance of future specialists. The highest indicators are registered for academically successful future psychologists.

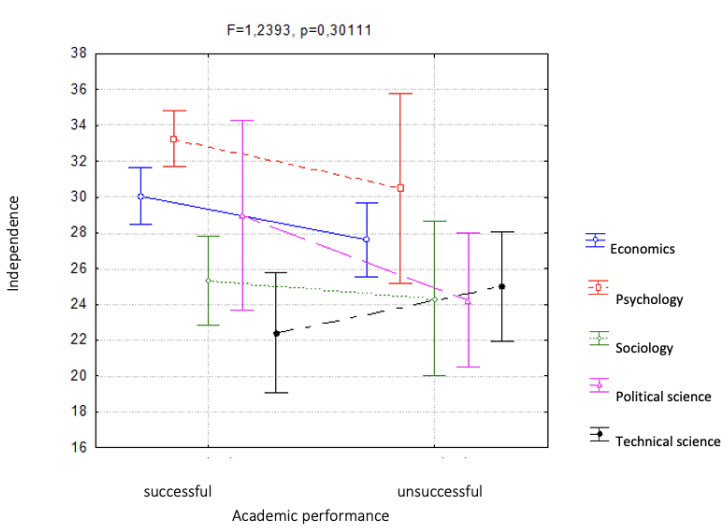


Fig. 2.16. **Indicators of independence of communicative creativity among students of various specialties depending on the level of academic performance**

Indicators of emotional stability of communicative creativity among students of various specialties do not depend on the level of academic performance (Fig. 2.17).

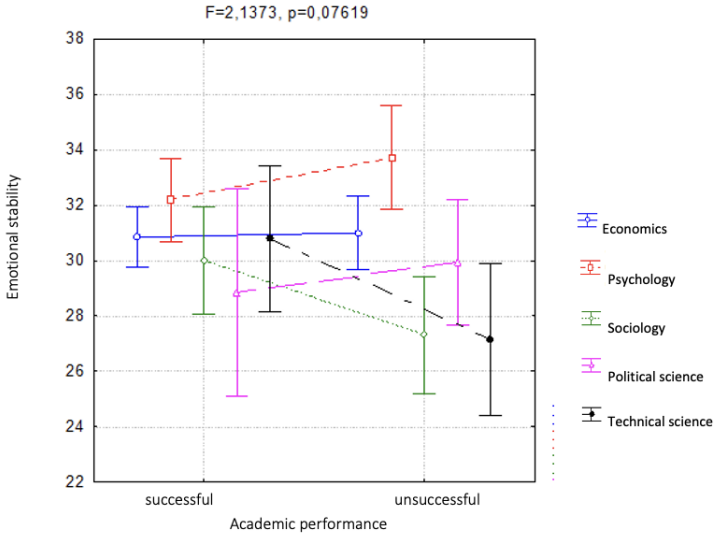


Fig. 2.17. **Indicators of emotional stability of communicative creativity among students of various specialties depending on the level of academic performance**

Indicators of manipulativeness of communicative creativity among students of various specialties do not depend on the level of academic performance (Fig. 2.18).

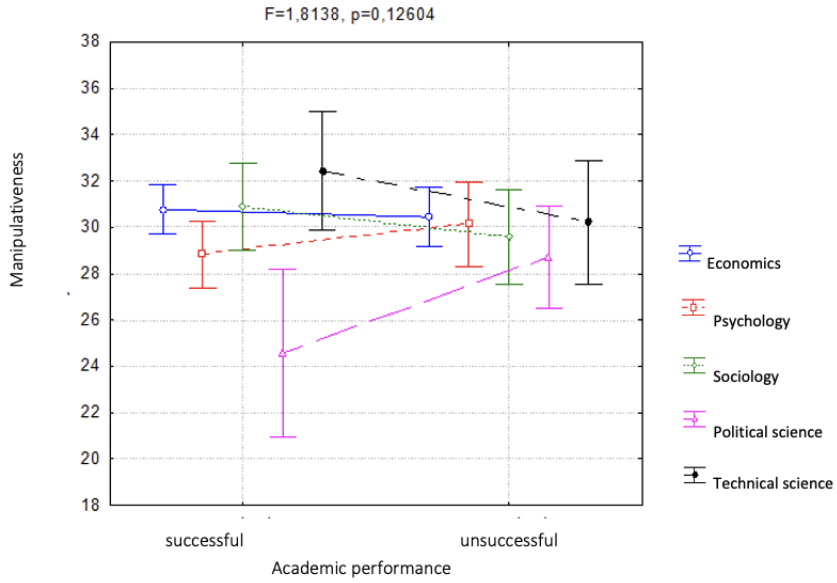


Fig. 2.18. **Indicators of communicative creativity manipulativeness among students of various specialties depending on the level of academic performance**

Indicators of communicative intolerance among students of various specialties do not depend on the level of academic performance (Fig. 2.19).

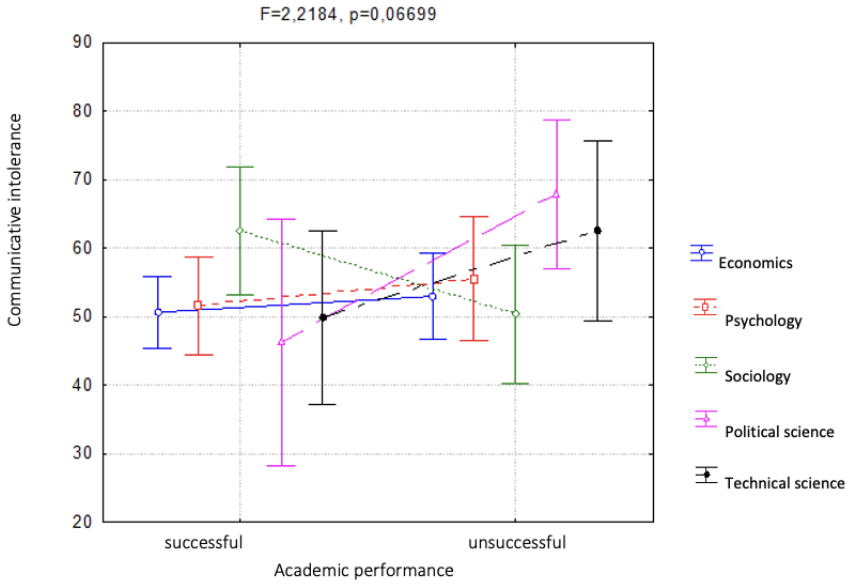


Fig. 2.19. **Indicators of communicative intolerance among students of various specialties depending on the level of academic performance**

Knowledge of international business etiquette significantly depends on the level of academic performance of future politologists in favor of academically successful ones (Fig. 2.20).

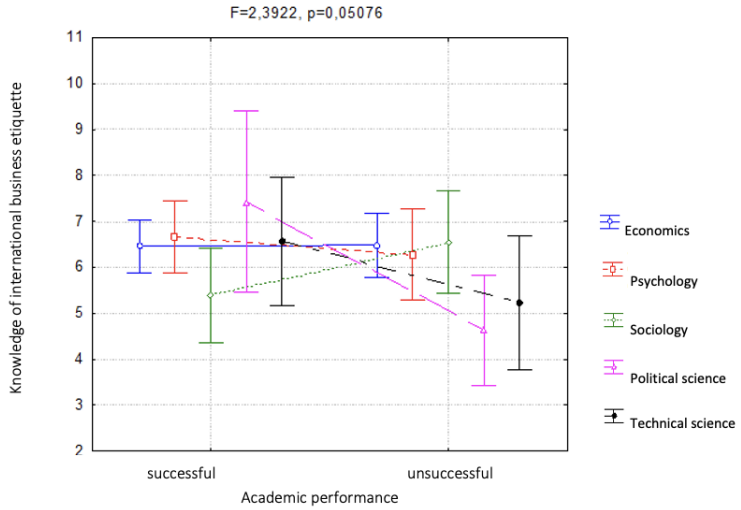


Fig. 2.20. **Indicators of awareness of international business etiquette among students of various specialties depending on the level of academic performance**

The indicators of storytelling and correspondence skills among students of various specialties do not depend on the level of academic performance, except for political science students, with whom these skills are higher if they have better academic performance (Fig. 2.21).

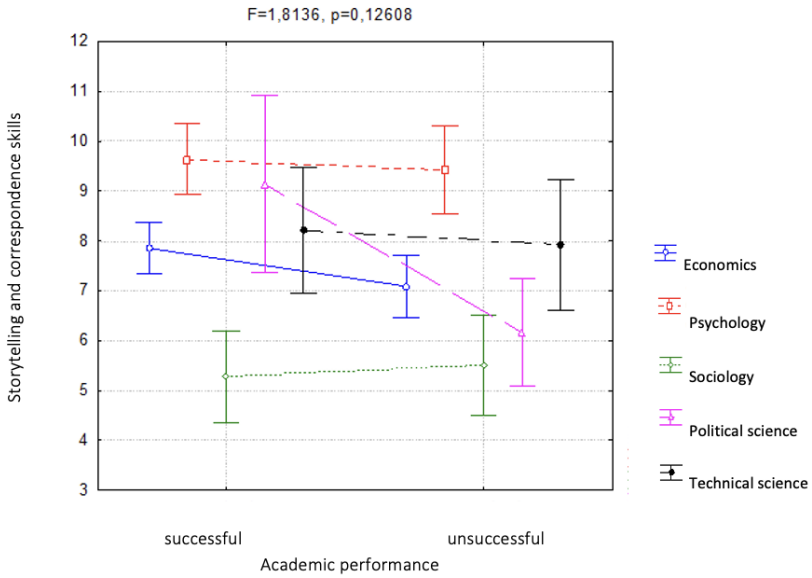


Fig. 2.21. **Indicators of storytelling and correspondence skills of students of various specialties depending on the level of academic performance**

Indicators of expressiveness of communicative creativity among students of various specialties do not depend on the level of academic performance (Fig. 2.22).

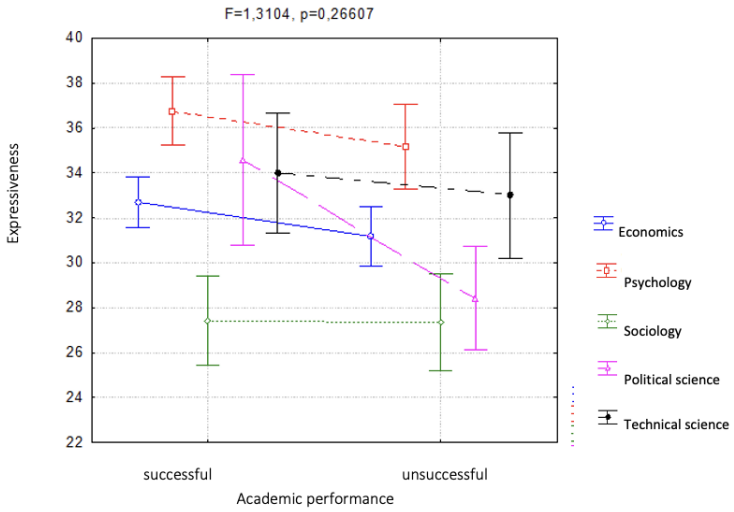


Fig. 2.22. **Indicators of expressiveness of communicative creativity of students of various specialties depending on the level of academic performance**

## 2.4. Intercorrelations of communication soft skills of future specialists

Fig. 2.23 shows the connection of non-verbal and verbal communication skills with social intelligence and social creativity.

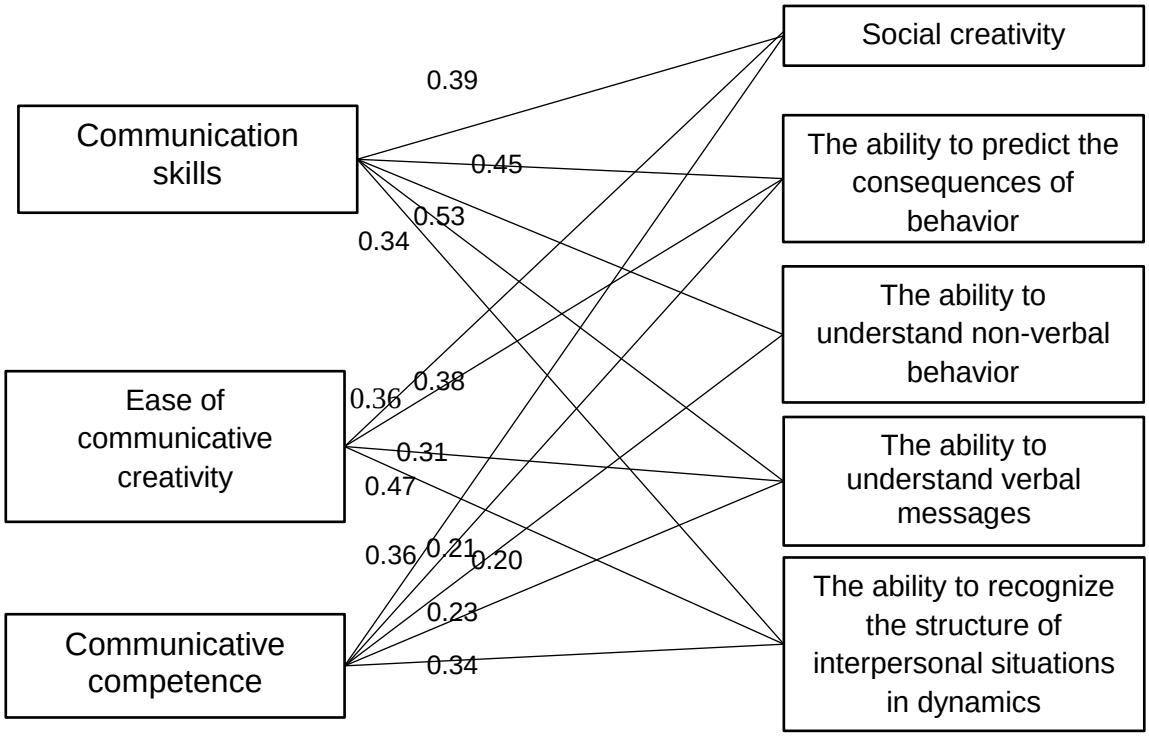


Fig. 2.23. **Correlations of verbal and non-verbal communication skills with social intelligence and creativity**

A number of positive relationships between communication skills and social intelligence and creativity were revealed. Therefore, the higher the aptitude to communicate, the ability to establish and maintain the communicative process, the more developed the social-intellectual abilities of the students and their ability to creatively solve problems of social interaction. The strongest connection was established between communicative abilities and the last fourth factor of cognition of behavioral systems, which studies the ability to recognize the structure of interpersonal situations in dynamics and is considered the most complex subtest of social intelligence in terms of content.

Moderate correlations were determined for communicative ease as the ability to quickly initiate a conversation, easily maintain a dialogue with the interlocutor and all indicators of social intelligence and social creativity. The strongest connection was established between communicative ease and the last fourth factor of knowledge of behavior systems (Fig. 2.24).

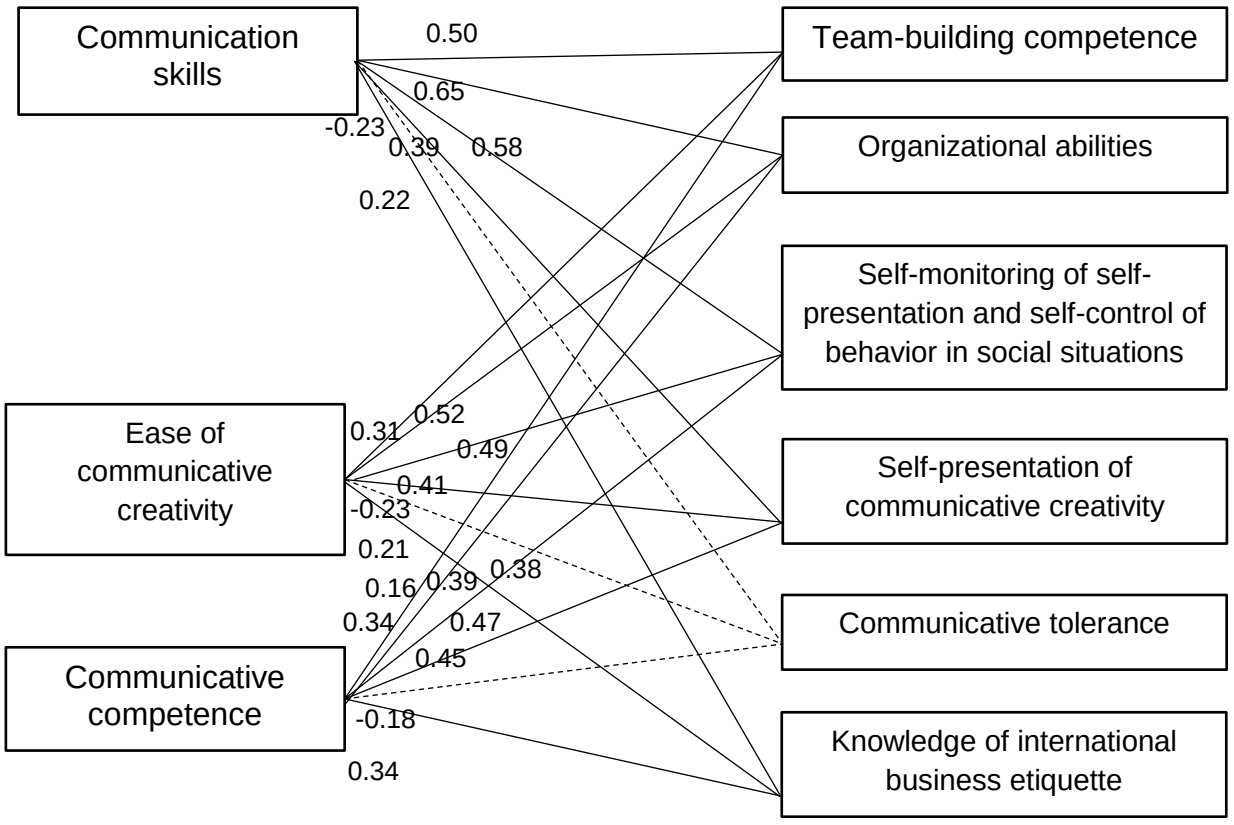


Fig. 2.24. **Correlations of verbal and non-verbal communication skills with team building, self-presentation and intercultural interaction skills**

Ease of communicative creativity moderately correlates with teamwork and self-presentation skills, weakly with intercultural interaction skills.

Communicative competence is weakly correlated with team-building skills and communicative tolerance, but moderately with organizational abilities, self-presentation skills, and awareness of international business etiquette.

Fig. 2.25 shows the connection of verbal and non-verbal communication skills with negotiation and conflict resolution skills.

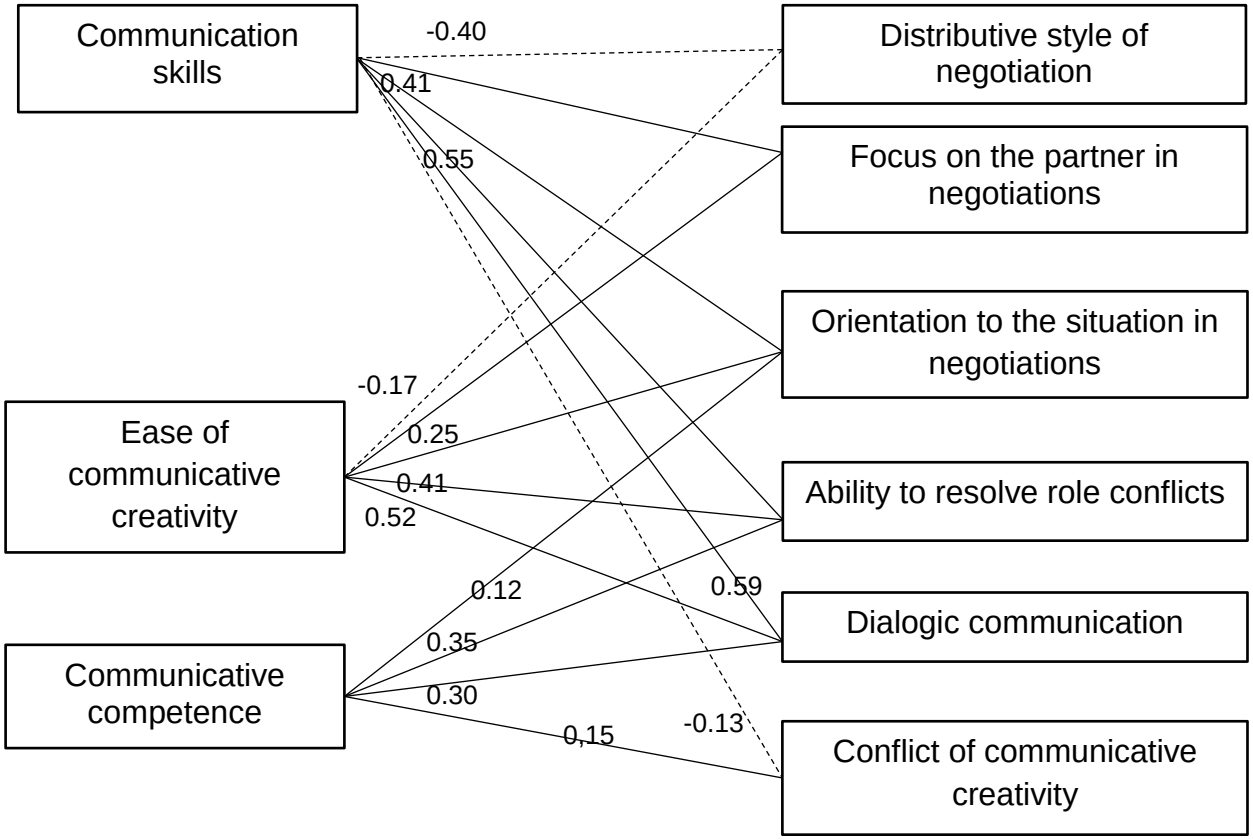


Fig. 2.25. **Correlations of verbal and non-verbal communication skills with negotiation and conflict resolution skills**

Communicative abilities are moderately correlated with the distributive style of negotiation, focused on the partner in negotiations, more pronounced correlations are with orientation to the situation in negotiations and dialogicity in communication, but weaker with the conflict of communicative creativity.

Ease of communicative creativity is characterized by weak connections with negotiation skills and moderate connections with conflict resolution skills.

Communicative competence is not mutually dependent on negotiation skills and is weakly correlated with conflict resolution skills.

Fig. 2.26 shows the connection of verbal and non-verbal communication skills with storytelling and correspondence skills, the ability to persuade.

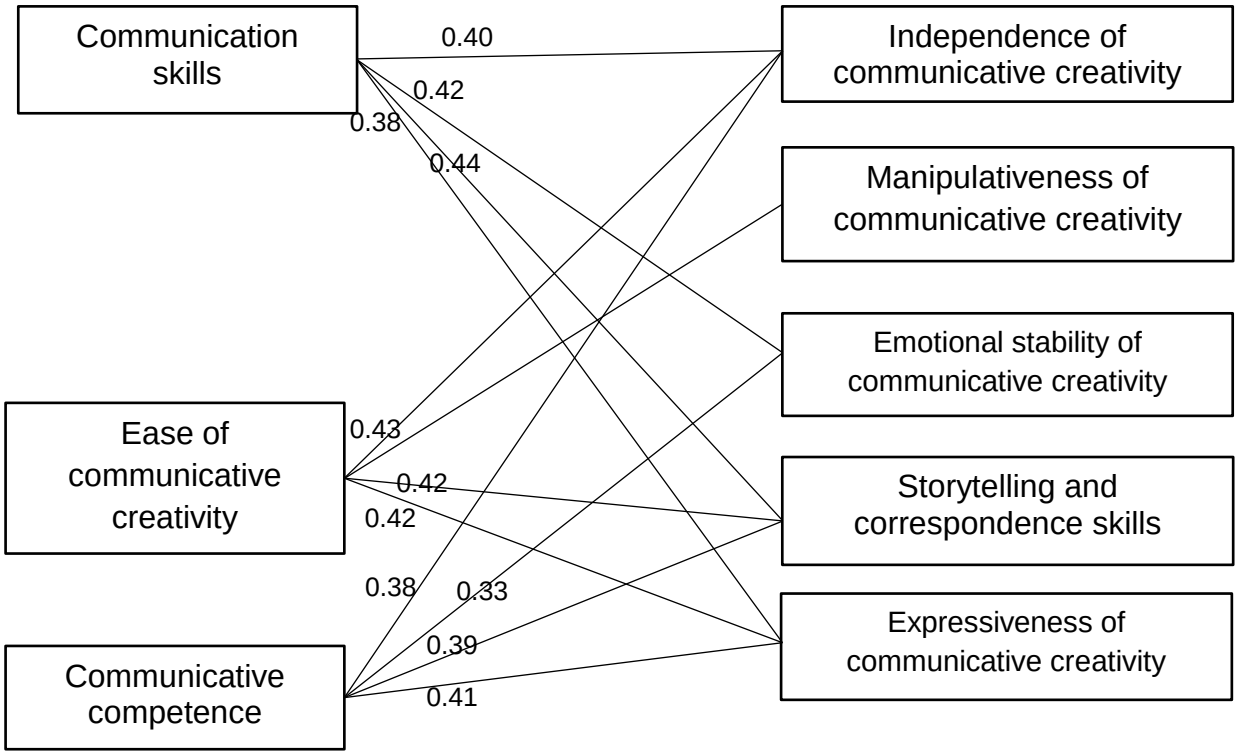


Fig. 2.26. **Correlations of verbal and non-verbal communication skills with storytelling and correspondence skills, the ability to persuade**

Communication skills have moderate relationships with all indicators of storytelling and correspondence skills and persuasiveness, whereas communication competence has weaker relationships with these soft skills. Ease of communicative creativity is characterized by moderate connections with independence and expressiveness of communicative creativity and storytelling and correspondence skills.

Fig. 2.27 shows the connections between socio-intellectual and teamwork skills, self-presentation, and intercultural interaction skills.

Social creativity is moderately correlated with teamwork, self-presentation and intercultural interaction skills. Self-monitoring of self-presentation and behavior self-control in social situations are characterized by the strongest connection with social creativity.

The ability to predict the consequences of behavior as an indicator of social intelligence is moderately correlated with teamwork and self-presentation skills, and weakly with intercultural interaction skills. Correlations

with team building skills and organizational abilities are characterized by more pronounced connections.

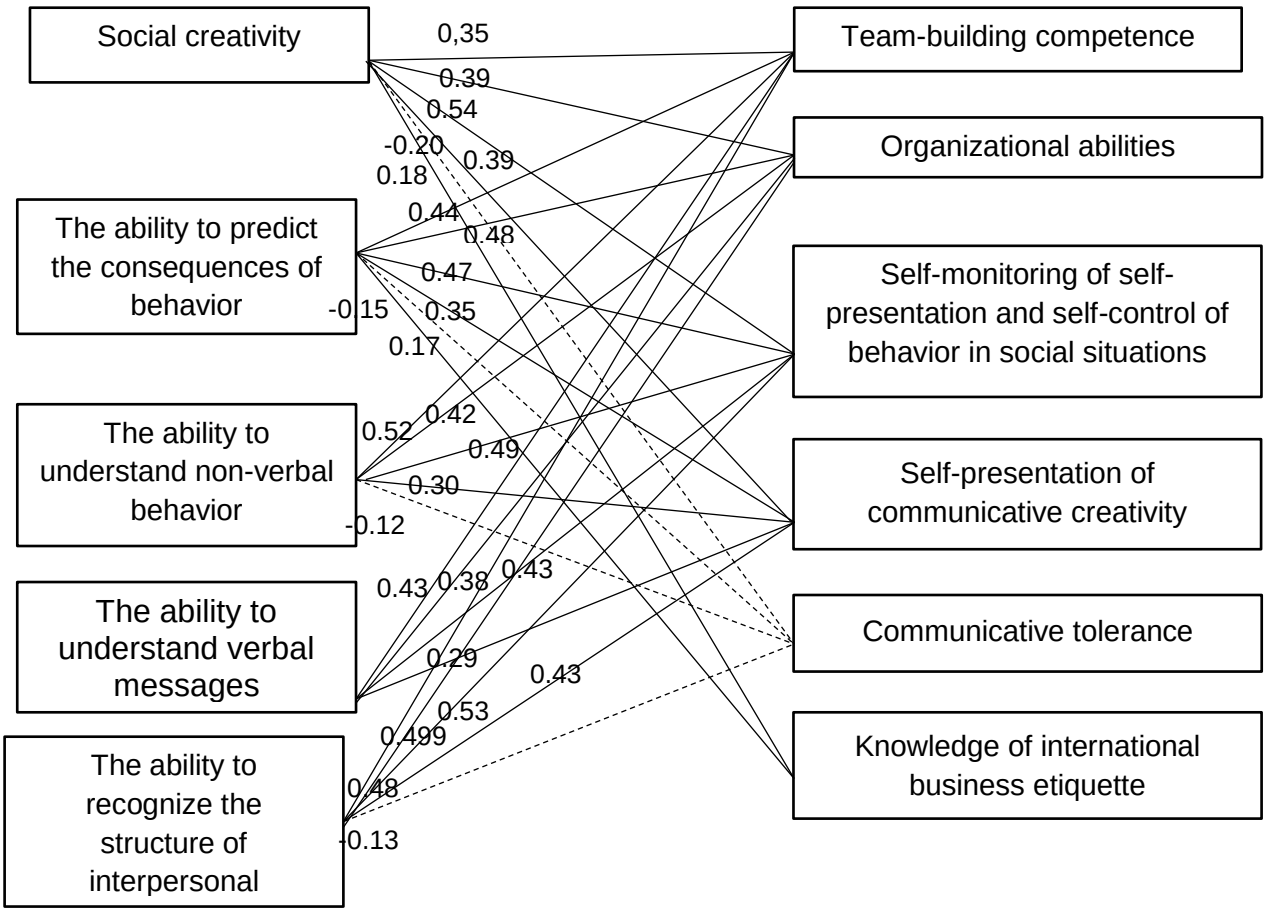


Fig. 2.27. **Correlations of social intelligence and creativity skills with team building skills, self-presentation and intercultural interaction skills**

The ability to understand non-verbal manifestations in the process of communication moderately correlates with teamwork and self-presentation skills, and weakly with intercultural interaction skills. Team-building competence is characterized by the strongest connection with social intelligence according to the indicators of the second subtest.

The ability to understand verbal messages in the process of communication moderately correlates with teamwork skills and self-presentation skills. Team-building competence is characterized by the strongest connection with social intelligence according to the indicators of the second subtest.

The ability to recognize the structure of interpersonal situations in dynamics is moderately correlated with teamwork and self-presentation skills, and weakly with intercultural interaction skills. The strongest connection was found with organizational abilities.

Fig. 2.28 shows the connections between social-intellectual, negotiation and conflict resolution skills. Social creativity moderately correlates with these groups of communication skills. The most pronounced correlation was found with the ability to resolve role conflicts.

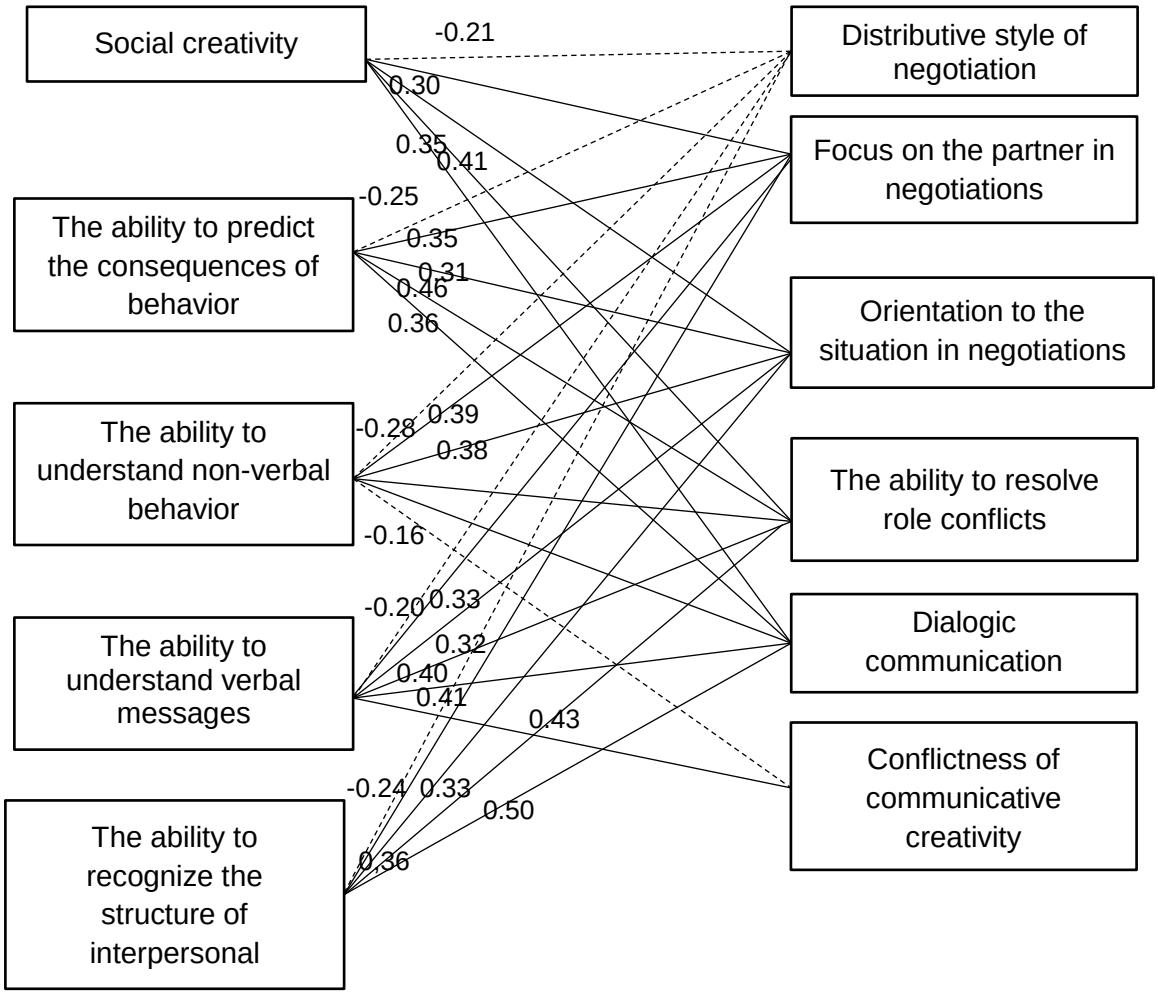


Fig. 2.28. **Correlations of social intelligence and creativity skills with negotiation and conflict resolution skills**

A number of moderate correlations were found between the ability to predict the consequences of behavior and negotiation and conflict resolution skills. The most pronounced correlation was found with the ability to resolve role conflicts.

A number of moderate correlations of the ability to understand non-verbal manifestations in communication, negotiation and conflict resolution skills were determined. The most pronounced correlation was found with focus on the situation in negotiations.

A number of moderate correlations of the ability to understand verbal messages and negotiation and conflict resolution skills were determined.

The ability to recognize the structure of interpersonal situations in dynamics moderately correlates with negotiation and conflict resolution skills. The strongest connection was found with the dialogical style of communication.

Fig. 2.29 shows the connections between social creativity and persuasive skills, in particular with independence and emotional stability. In addition, social creativity is moderately correlated with storytelling skills and expressiveness of communicative creativity.

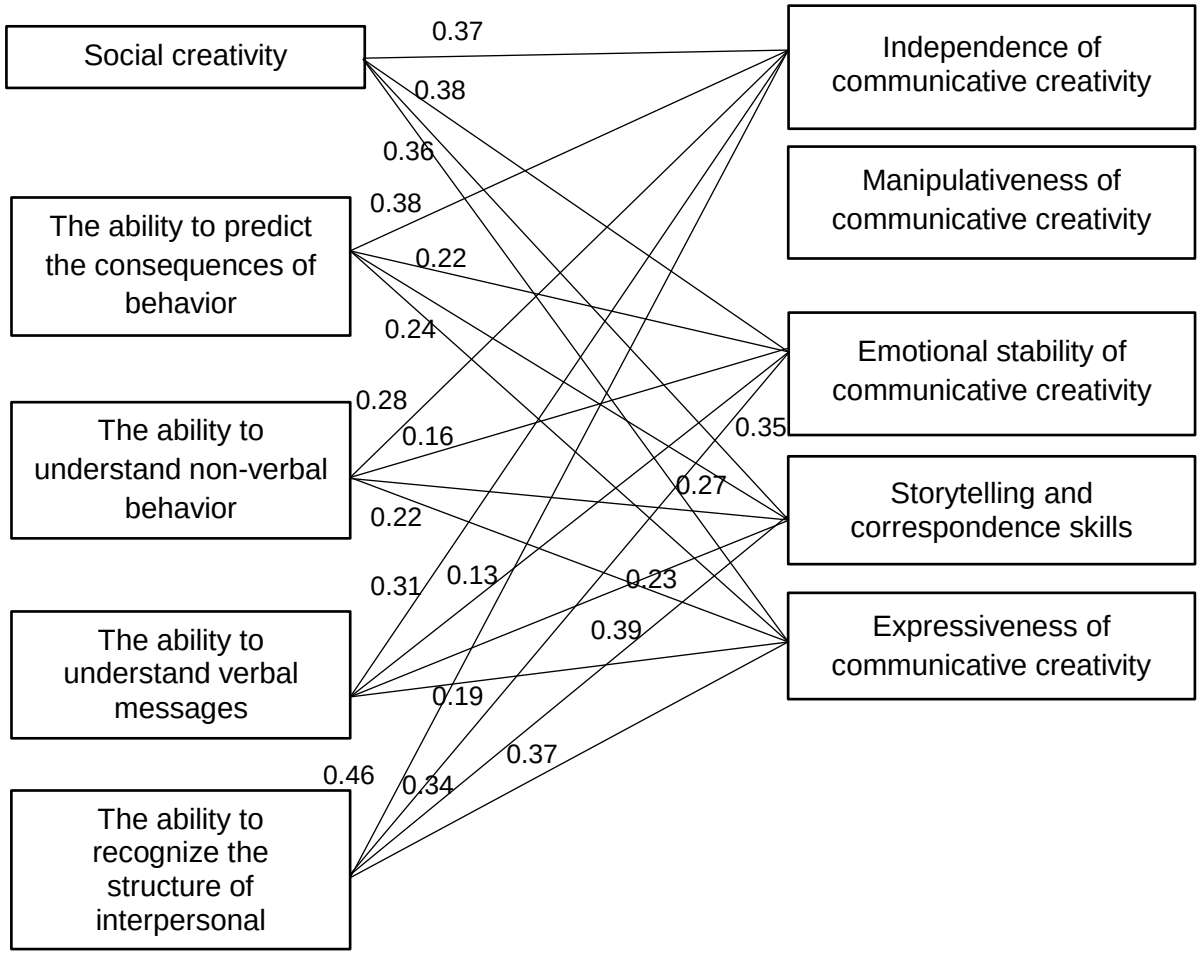


Fig. 2.29. **Correlations of the skills of social intelligence and creativity with the skills of storytelling and correspondence, the ability to persuade**

The ability to predict the consequences of behavior is moderately correlated with the independence of communicative creativity and weakly with

emotional stability, storytelling skills, and expressiveness of communicative creativity.

The ability to understand nonverbal behaviors is weakly correlated with persuasive skills and writing skills.

The ability to understand verbal messages moderately correlates with independence of communicative creativity and storytelling skills and weakly with emotional stability and expressiveness of communicative creativity.

The ability to understand the unfolding dynamics of social interaction has moderate relationships with writing skills and persuasiveness.

Fig. 2.30 shows the relationships of team creative competence and organizational skills, which represent teamwork skills, with writing skills, self-presentation skills, and intercultural business communication skills.

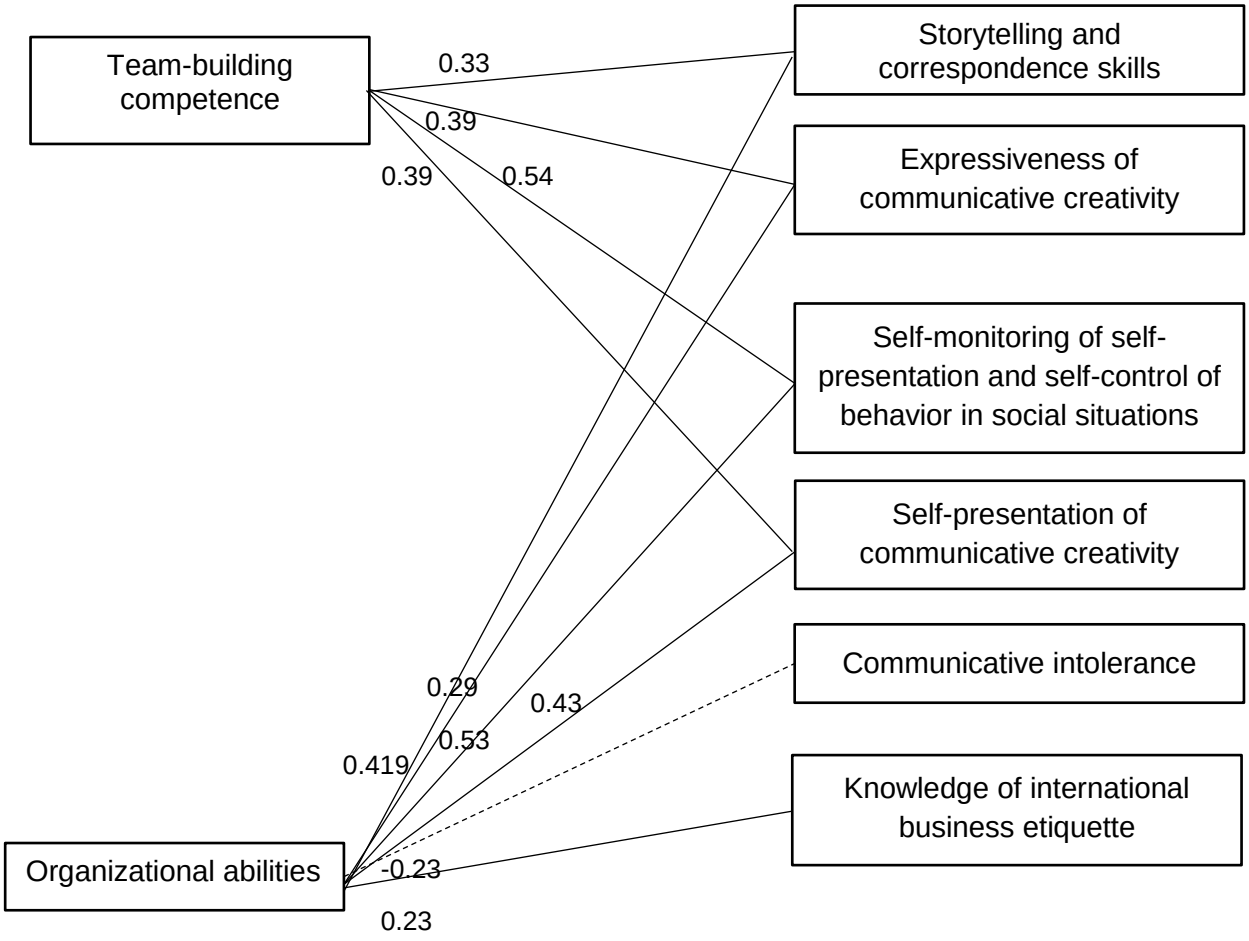


Fig. 2.30. **Correlations of teamwork, writing, self-presentation, and intercultural business communication skills**

Team-building competence positively correlates with storytelling skills and expressiveness of communication, with overshadowing of self-monitoring in self-presentation and self-presentation of communicative creativity.

Organizational abilities are positively correlated with storytelling skills and expressiveness of communication, with a tendency to self-monitoring in self-presentation and self-presentation of communicative creativity. In addition, connections of organizational abilities with communicative tolerance and awareness of international business etiquette were revealed (Fig. 2.31).

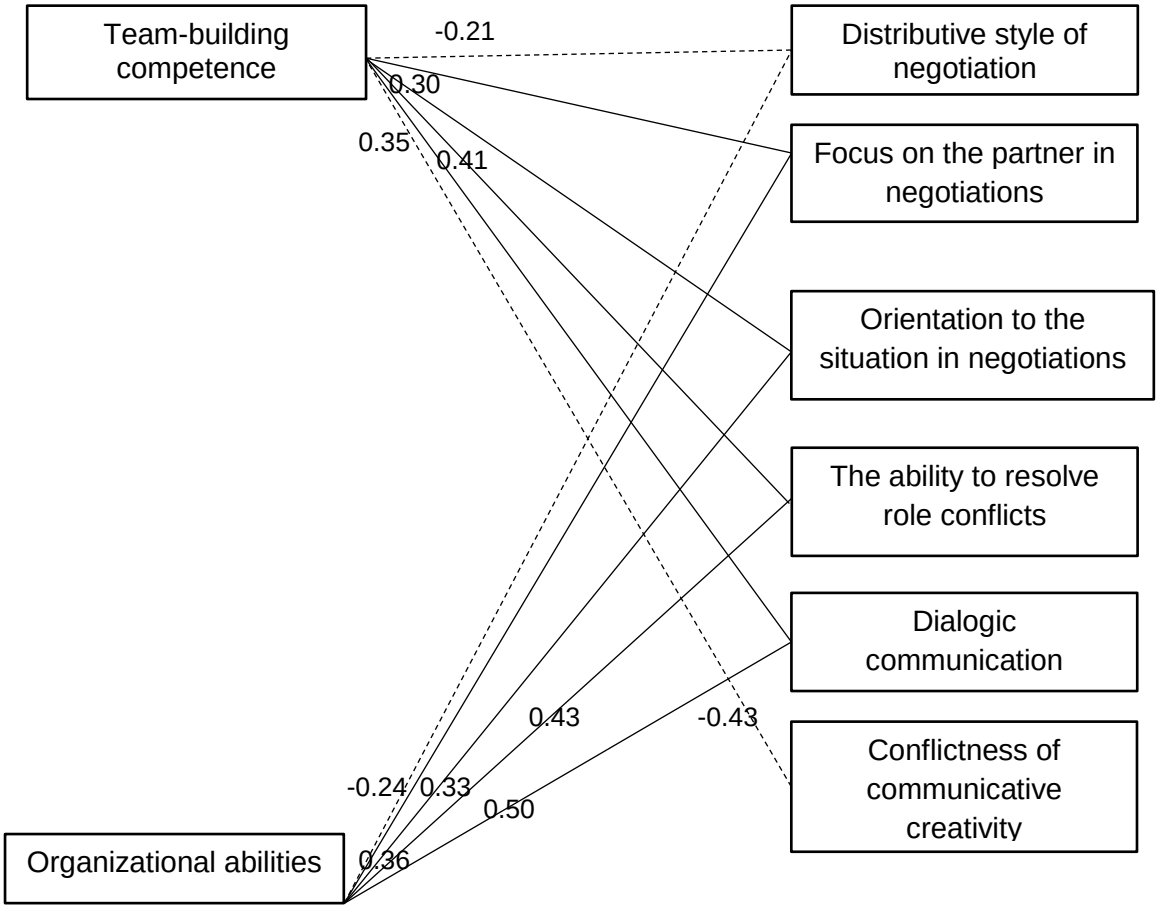


Fig. 2.31. **Correlations of teamwork, negotiation and conflict resolution skills**

Positive connections between team building competence, independence and manipulativeness of communicative creativity were determined, as well as a weak positive connection with emotional stability in communication (Fig. 2.32).

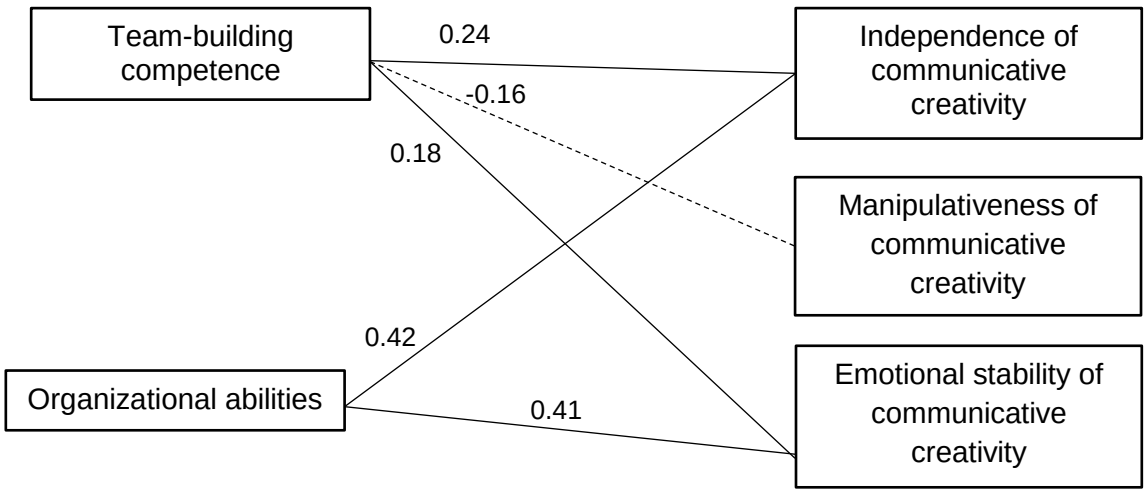


Fig. 2.32. **Correlations of teamwork and persuasion skills**

Organizational abilities are positively correlated with independence of communicative creativity and emotional stability in communication.

Fig. 2.33 shows the connections between the skills of self-presentation, persuasion and intercultural interaction.

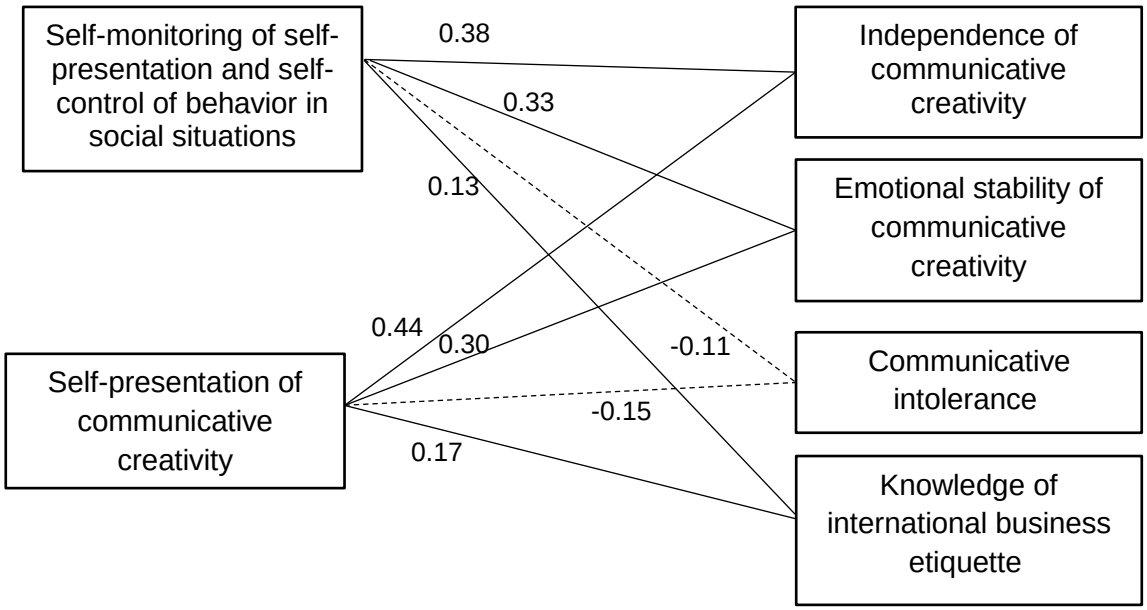


Fig. 2.33. **Correlations of self-presentation, persuasion, and intercultural business communication skills**

Self-monitoring of self-presentation and self-control of behavior in social situations positively correlates with independence and emotional stability of communicative creativity, and weakly with communicative tolerance and awareness of international business etiquette.

Self-presentation of communicative creativity is positively correlated with independence and emotional stability of communicative creativity, and weakly with communicative tolerance and awareness of international business etiquette.

Fig. 2.34 shows the relationship between self-presentation and negotiation skills.

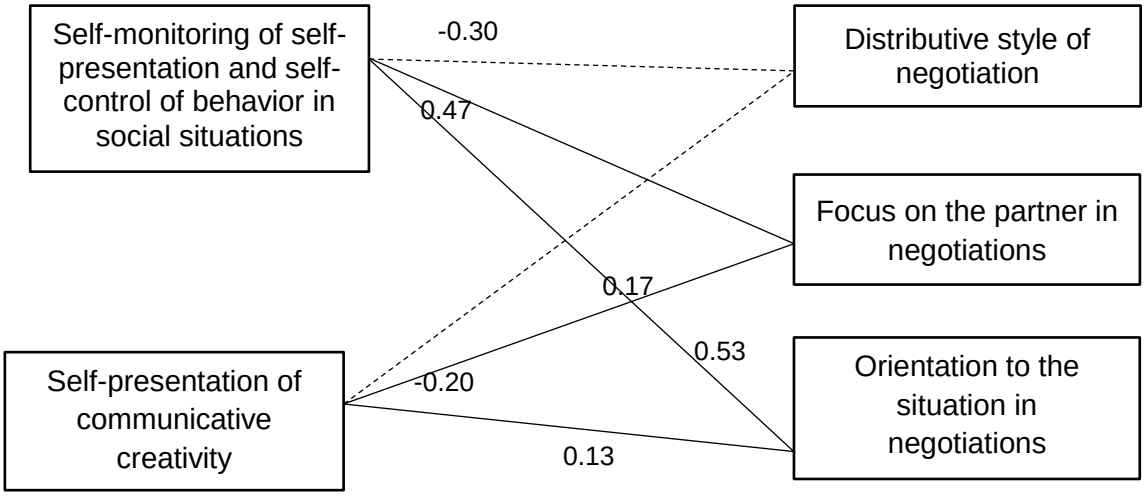


Fig. 2.34. **Correlations of self-presentation and negotiation skills**

Self-monitoring of self-presentation and self-control of behavior in social situations positively correlates with focus on the partner and on the situation in negotiations and negatively with distributive negotiation style.

Self-presentation of communicative creativity is positively correlated with the focus on the partner and on the situation in negotiations and negatively with the distributive style of negotiations.

Correlations of self-presentation and conflict resolution skills are shown in Fig. 2.35.

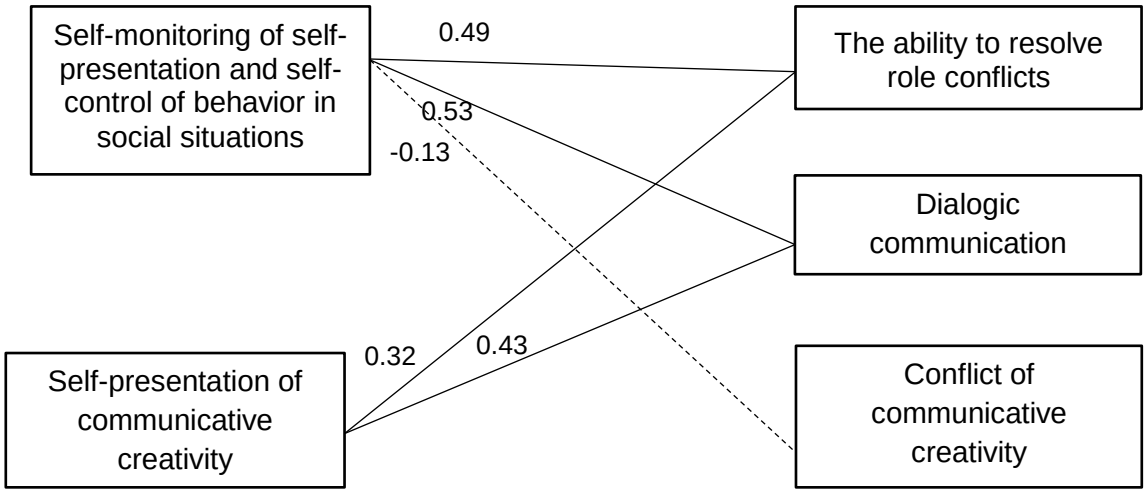


Fig. 2.35. **Correlations of self-presentation and conflict resolution skills**

Self-monitoring of self-presentation and self-control of behavior in social situations positively correlates with the ability to resolve role conflicts and dialogicity in communication, negatively and weakly with the conflictness of communicative creativity.

Self-presentation of communicative creativity is associated with the ability to resolve role conflicts and dialogicity in communication.

Correlations of the skills of persuading others and the skills of conflict resolution are shown in Fig. 2.36.

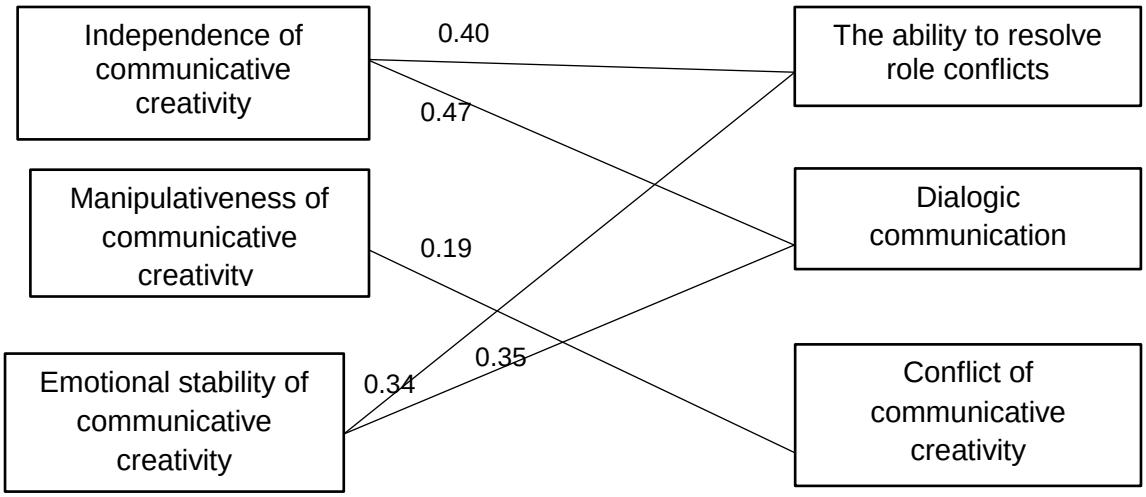


Fig. 2.36. **Correlations of skills of persuasion and conflict resolution**

The independence of communicative creativity is positively related to the ability to resolve role conflicts and dialogicity in communication.

The manipulativeness of communicative creativity is weakly correlated with the conflictness of communicative creativity.

Emotional stability of communicative creativity is positively related to the ability to resolve role conflicts and dialogicity in communication.

The independence of communicative creativity is positively related to storytelling skills, expressiveness of communicative creativity, communicative tolerance, and awareness of international business etiquette.

The manipulativeness of communicative creativity is weakly correlated with communicative intolerance.

Emotional stability of communicative creativity is positively related to storytelling skills, expressiveness of communicative creativity, communicative tolerance, and awareness of international business etiquette.

Correlations of persuasion, intercultural business communication and writing skills are shown in Fig. 2.37.

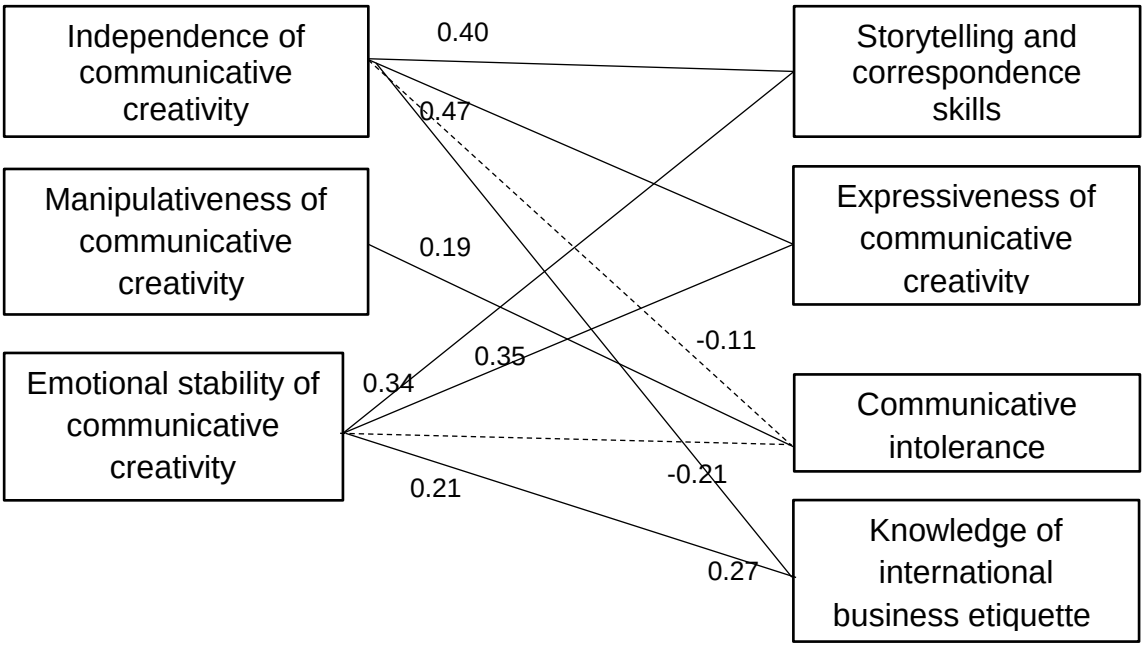


Fig. 2.37. **Correlations of persuasion, intercultural business communication and writing skills**

Correlations of storytelling, correspondence, intercultural business communication, and conflict resolution skills are shown in Fig. 2.38.

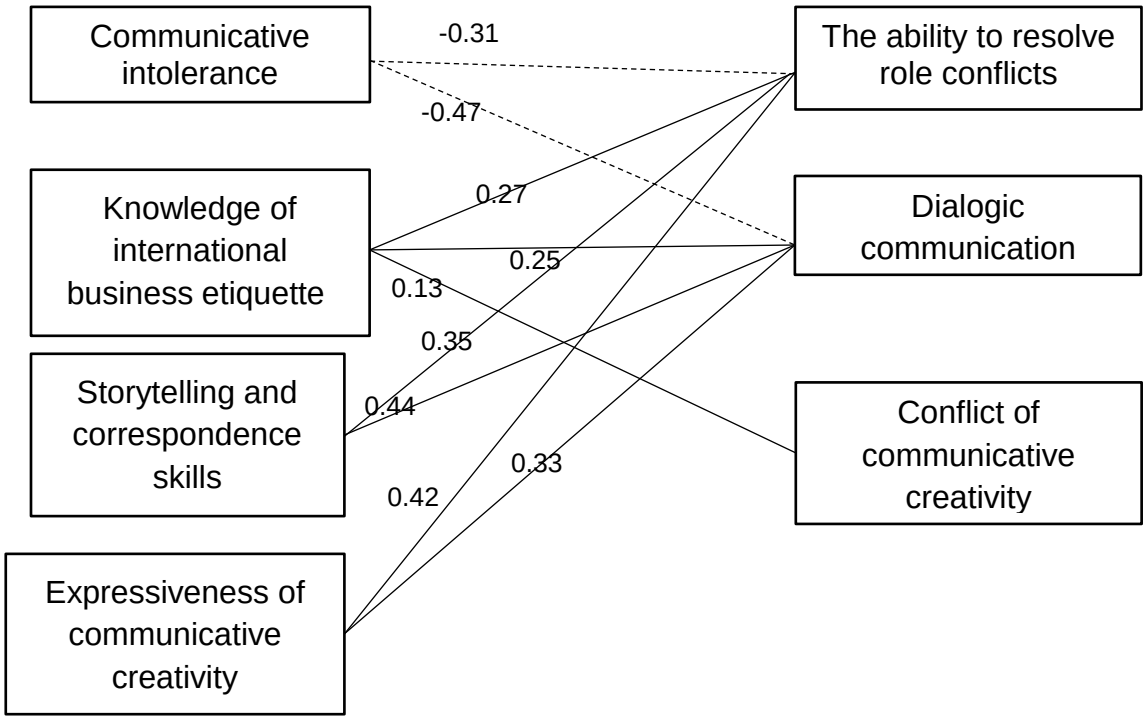


Fig. 2.38. **Correlations of storytelling, correspondence, intercultural business communication and conflict resolution skills**

Moderate correlations of communicative tolerance and ability to resolve role conflicts and dialogic communication style were determined.

Awareness of international business etiquette is positively related to all components of conflict resolution skills.

Moderate correlations of storytelling skills and ability to resolve role conflicts and dialogic communication style were determined.

The expressiveness of communicative creativity is positively related to indicators of the ability to resolve role conflicts and dialogic communication style.

Correlations of storytelling, correspondence and intercultural business communication skills are shown in Fig. 2.39.

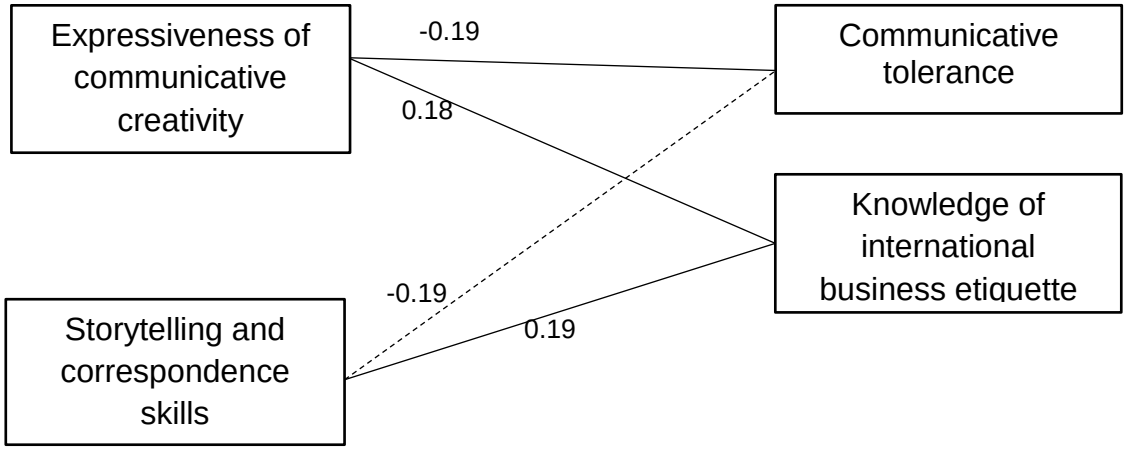


Fig. 2.39. **Correlations of storytelling, correspondence and intercultural business communication skills**

Weak correlations were determined between the skills of storytelling, correspondence and intercultural business communication. So, there is a certain positive interdependence between writing skills and producing creative texts and awareness of business etiquette, respect for interlocutors who represent other cultures.

## 2.5. The program for the development of communication soft skills of future specialists in technical specialties

The problem of the social creativity development should be analyzed on two levels: through the study of the theoretical and methodological principles and foundations of the development of social creativity as a type of social

abilities (along with social intelligence and communicative qualities of the individual), as well as a type of creativity itself (along with verbal and communicative skills).

1. From the standpoint of understanding social creativity as a type of social abilities, it is appropriate to consider the methodological foundations of the development of social abilities in general and social intelligence in particular. E.g., O. Vlasova analyzed the leading factors in the development of social abilities and stated that it becomes possible in the team and through the team with appropriate organization of self-management, the development of social activity of all its members [4]. V. Poltoratska analyzed the specifics of social abilities in forming the communication culture of teachers [16], while I. Zyazyun considered social abilities of students (cited by O. Sasko) [20]. T. Yatsenko showed the powerful potential of active forms of social-psychological training in the development of socio-professional abilities of students of pedagogical universities (T. Yatsenko, Yu. Kmit and B. Oleksienko) [24].

A separate direction for the development of social abilities is a system of means of forming the social intelligence of an individual, where the optimal form is training as a set of group methods of forming abilities and skills of self-knowledge, communication and mutual understanding of people in a group. There are three main conceptual directions in psychological training: psychodynamic, behavioral, humanistic (cited by M. Savrasov) [17], where the first includes transactional analysis, psychodrama, and body-oriented psychotherapy; the second includes skills training, and the last includes group meetings and sensitivity training.

Art therapy is a form of development of social skills (O. Sasko) [20], in particular, its variant – fairy-tale therapy – is aimed at understanding life experience, actualizing life resources, and can also be an effective means of individual and group therapy (O. Sasko) [20]. The use of fairy-tale therapy methods, work with metaphorical associative maps, visual methods and techniques have a powerful potential for the development of social intelligence and social creativity.

Dialogue and game methods are of great importance in the development of social skills (O. Poezdnik) [15]. In a situation of active educational interaction, in particular in an educational game, which always objectifies the need for cognitive activity with the conditionality of the requirements of the game situation and the possibilities of their unregulated transformation, removing the existing

social restrictions, the cognitive-creative and personal-regulatory potential of the individual is actualized, directing the psyche to development of socio-creative foundations.

The task of the first stage of training is to bring non-constructive models of behavior from the internal to the external, which in behaviorism is realized through the demonstration of learned skills, in psychoanalysis – awareness of unconscious motives and barriers, in humanistic psychology – awareness of one's authenticity, etc. At the second stage of training, the construction of a model of ideal behavior in the external plan is implemented, in behavioral psychology it is implemented through the artificial creation of a standard in the form of a video recording, in the humanistic approach – through the behavior of the presenter, or those participants who have realized the purpose of their personality and accepted themselves as they are, and in the psychodynamic approach – through the stage of emergence of a "purified" personality.

At the final stage of training, the behavior of the participants is modified in the direction of the maximum approach to the standard and its consolidation in the internal plan, which in behavioral psychology is realized by "pulling" on the desired behavior with the help of positive reinforcement of successful behavior and the destruction of old stamps, in psychoanalytic – through "liberation" from the pressure of ineffective scenarios or other unconscious constructs, and in humanistic psychology – through repeated talking and special elaboration of the main principles of self-actualized behavior (O. Sasko) [20].

The problem of the development of socio-intellectual abilities was analyzed by O. Sasko, who notes that for the development of the ability to predict the consequences of behavior, the means of positive psychotherapy focused on the solution, Gestalt therapy, psychodrama, trainings of acting, communicative competence, the ability to understand non-verbal expression are effective means of body-oriented therapy, neuro-linguistic programming, non-verbal dynamic therapy, art therapy, gestalt therapy, trainings of sensitivity, and the ability to understand verbal messages – by means of transactional analysis [20].

Development of social intelligence, empathy, social-perceptive abilities by means of social-psychological training, according to L. Ivanska and R. Agavelyan, provides: the formation of social and perceptive abilities through an increase in the level of perception; the formation of empathic orientation through the actualization of information on the significance of the

presence of empathy through the expansion of psychological knowledge about its mechanisms; the development of the ability to center, the limits of recognition of non-verbal behavior, the implementation of psychological knowledge in the practice of relationships (cited by O. Sasko) [20].

The formation of social intelligence is facilitated by the presence of sensitivity, which should be understood as a special sensitivity to the mental states of others, which has an emotional nature, is based on intuition, that is, individual "heuristics", which a person uses to draw conclusions about interpersonal communication. Sensitivity is related to empathy, that is, the ability to emotionally resonate with the experiences of another person, which, in turn, is the basis of social intelligence (O. Sasko) [20]. Social perception contributes to the ability to perceive, understand and evaluate others, oneself, one's group, to receive verbal and non-verbal information about how a person is perceived by others, how accurate one's own perception is, therefore social perception training is aimed at forming the skills of deep reflection, meaningful and evaluative interpretation of the object of perception [20].

According to A. Berklund, the development of social intelligence of students involves: the formation of the ability to understand essential signs in various non-verbal reactions of a person, the development of sensitivity to the spatio-temporal characteristics of human interaction; formation of the ability to understand changes in the meaning of similar verbal reactions of a person depending on a certain situation that caused them; formation of the ability to predict the consequences of people's behavior in a certain situation, to predict what will happen in the future; formation of the ability to understand the logic of the development of the interaction situation, the meaning of people's behavior in different situations; increasing "self-understanding and understanding of others" (O. Sasko) [20].

A. Berklund notes that the development of sensitivity and social intelligence becomes possible by the use of psychogymnastic exercises, which make it possible to obtain broad and at the same time detailed material necessary for understanding the process and results of social-perceptive activity, and also form an environment that enables the development of sensitive abilities. The formation of sensitivity in observation in relation to verbal, non-verbal and proxemic (spatial-temporal) manifestations of a person is achieved by a series of training exercises aimed at the development of one or another sensory channel: visual, auditory, tactile sensibility (O. Sasko) [20].

Formation of observability in relation to non-verbal aspects, according to A. Berklund, becomes possible by the implementation of tasks, the performance of which requires recording features of appearance, facial expressions, movements, poses, vegetative changes, microexpressions of the eyes, a pair of linguistic components of speech, etc. [20].

The formation of sensitivity to the spatio-temporal characteristics of human interaction is achieved through tasks that require fixing the distance of interaction, spatial location, movements, and the rhythm of movement [20].

The formation of the ability to predict the consequences of people's behavior in a certain situation, to predict future events and the ability to understand the logic of the development of an interaction situation, the meaning of behavior in various situations is achieved through nomothetic and ideographic sensitivity, where the former is the ability to understand a typical representative of one or another social group and use this understanding to predicting the behavior of other people belonging to this group, and the latter it the ability to understand the uniqueness of each person, to use familiarity that has a continuation, and the amount of information about a person that increases, for more accurate predictions of their behavior. In order to develop them, one should implement exercises aimed at developing the ability to understand and predict states, relationships and properties of their behavior [20].

Formation of the ability to understand himself and others should be ensured by social-perceptive exercises aimed at the development of empathy, reflection, business and role-playing games [20].

Consideration of social creativity as a type of creativity involves taking into account the following principles in the formation of creativity, defined by M. Savrasov [17]:

- providing a creative educational environment as a basis for the development of social and other types of creativity of students, which involves directing their activity to the development of creative abilities, value orientations, motivation for self-realization in the profession, in particular in the information and technical field, which becomes possible due to the system of promoting the organization and expanding the content of the learning process in higher education institutions, creation of a strong motivational basis for development and manifestation of creativity;

- unlocking the creative potential of the individual when studying in higher education institutions becomes possible by purposeful formation of the ability to self-regulate educational and professional activities;
- a creative educational environment should influence the actualization of students' creative potential in future professional activities, which is achieved by the program of psychological support for the development of creativity.

M. Savrasov notes that providing a creative educational environment in order to develop the creativity of students is achieved through the optimization of the educational process, which is designed to use the creativity of students in creative activities, to develop their valuable attitude to creativity and motivation for creative self-realization in educational and professional activities in higher education institutions. The author identified the following ways of implementing a creative educational environment in higher education institutions: 1) overcoming psychological barriers that stand in the way of the manifestation of creativity by preventing the phenomenon of "TTTM – teacher talks too much", that is, the transition to a dialogic "teacher and student"; 2) actualization of the situation of success in the joint activities of teachers and students through the activation of the participation of teaching and professorial staff of departments and students in joint project activities; 3) strengthening the creative activity of students in classroom and extracurricular work; 4) promotion of independent scientific work of students with determination of the individual trajectory of professional development, inclusion of students in various forms of educational and research activities; 5) application of elements of problem-based learning as a means of activating educational and cognitive activity, maintaining a high level of problem solving and creativity in the educational process; 6) the use of the latest information technologies, means of distance education and technical means of education; 7) differentiation of training and individual approach, creation of an atmosphere of trust; 8) compliance with the principle of objectivity of assessment; 9) implementation of "subject-subject" relations, dialogic communication between students and teachers as subjects of communication and joint activity; 10) the relationship between theoretical ideas about creativity and creativity with acquired competences; 11) giving students the opportunity to make multivariate creative decisions; 12) promotion of students' reflection of their own creative qualities as a prerequisite for the success of future professional activities.

To a number of methods of implementation of the specified condition M. Savrasov refers mini-lectures and conversations of teachers and students dealing with the problems of self-development of creative abilities, divergent thinking, artistic and aesthetic activity; project method and joint teacher-student activities to solve creative tasks; the method of communicative attack aimed at quick inclusion, mobilization, getting students interested, encouragement of teachers to maximally emphasize contradictions (both real and imaginary or even specially organized by the teacher) in order to motivate students to active mental activity; the method of proving and persuasion aimed at activating the volitional efforts of students, by explaining the expediency of mastering the material to reveal creativity and apply it in life and professional activity; situational practice-oriented tasks aimed at immersion in professional activity, students' awareness of their own role as a subject of creative and pedagogical activity; encouraging the use of divergent thinking, methods of stimulating students' independent work through the introduction of distance learning technologies, which are designed to develop students' initiative, perseverance and tenacity in achieving the educational goal, form analytical skills, promote systemic thinking, etc. [17].

A. Luok emphasizes the high importance of the creative guidance of the teacher in developing students' creativity; in case of insufficient level of such a creative guidance, students will be prone to the reproductive level of knowledge assimilation (cited by M. Savrasov) [17].

Within the scope of the dissertation experiment conducted by S. Shandruk, in order to activate the educational and creative activity of students, the following methods and techniques of teaching, cognitive work, and organizational forms of learning were used, which activated the searching creative activity of students and strengthened their subjectivity in the educational process [23].

D. Kokhanovskaya presented two classifications of methods of creativity and professional creative thinking development. According to the formative orientation, the author defined (cited by M. Savrasov) [17]: 1) methods aimed at developing the experience of creative activity (a) with the use of complicated conditions: the method of time limits, the method of sudden prohibitions, the method of new options, the method of information insufficiency, the method of absurdity; b) group solution of creative tasks: the Delphi method, the "black box" method, the diary method; c) collective stimulation of creative search: the method of brainstorming, synectics;

enumeration of attributes and associative techniques, which consist in encouraging the creation of new verbal associations; d) metaphorical synthesis, which involves the use of metaphors and comparisons to stimulate creative thought and is aimed at "making the familiar strange"; 2) methods of emotional influence aimed at forming experience through experiencing one's own professional, creative, educational and cognitive activity and create a positive emotional attitude towards it: encouragement, educational and emotional game, creating a situation of success that stimulates evaluation, free choice of creative tasks, encouraging the choice of alternative solutions, emphasizing the personal importance of students.

By the method of organizing the educational and developmental influence D. Kokhanovska singles out (cited by M. Savrasov) [17]: 1) structural and logical methods (tasks), i.e. the performance of creative tasks; 2) training methods; 3) game methods.

The leading structural-logical method in our research was the case method or the method of situational exercises, which is interactive and brings the learning process closer to real practical professional activity. The purpose of the case method is to develop ingenuity, the ability to solve problems, to analyze and diagnose creative problems (O. Markova) [10]. The case method is presented in three varieties: 1) case events; 2) case exercises and 3) case solutions. In our study, all types of cases were included in the teamwork training program.

Among the training methods for the purpose of developing the students' social creativity those were used that could be implemented in a group form, in particular those noted by K. Fomenko and M. Savrasov: 1) A. Osborn's brainstorming; the method of synectics; the "World Cafe" method; the Six Thinking Hats method by E. de Bono; Attributive Listing; Brutethink; Superheroes; SCAMPER [21].

In the organization and content of the program for the development of social creativity of IT students presented in the study, we paid special attention to the use of game methods, in particular thinking ones – analytical, idealization, methodological, organizational activities, as well as role-playing and business, games, board games and T-games (K. Fomenko, M. Savrasov) [21].

Thus, the methodology for the development of social creativity of future specialists in the information and technical field should provide for the selection of developmental psychotechnologies aimed at the cultivating social

abilities in general, the development of creative potential and group creativity (stimulation of group forms of creative activity), and the integration of these methods for the development of social creativity.

## 2.6. The structure and content of the program for the development of social creativity of future technical specialists

The structure of the program is represented by three modules – motivational, developmental and professionally oriented, the tasks of each are shown in Table 2.17.

Table 2.17

**The general structure of the development program**

| Module | The purpose of the module | Stages |
|---|---|---|
| Motivational | Formation of positive motivation to participate in the development program | 1) Providing positive motivation to participate in the development program;<br>2) formation of a positive psychological climate in the training group |
| Developmental | Development of socio-creative qualities and abilities of the future technical specialist | 1) Analysis of the features of one's own socio-creative qualities and abilities that contribute to the success of professional activity;<br>2) development of social creativity of future technical specialists |
| Professionally oriented | Development of the components of the professional competence of a technical specialist | 1) development of a positive and active professional identity of a future technical specialist;<br>2) development of socio-intellectual qualities that contribute to the professional improvement of an IT specialist;<br>3) development of role and team-building competence and dialogicity in business communication of future IT specialists |

**The motivational module.** The effectiveness of developmental activities is ensured both by the special content of the classes organized according to the program and by meaningful and comprehensive positive motivation to

participate in them. In order to form positive motivation, an auxiliary set of psychological tasks of a playful nature – psychogymnastics – was used.

Psychogymnastic exercises are aimed at overcoming the low activity of participants in development programs, weak group cohesion, insufficient motivation and interest of participants in the content of the work, weak structuring of the training group, excessive aggressiveness, fatigue and monotony. Psychogymnastic exercises are games that contribute to an easy and pleasant acquaintance of the participants, relieve anxiety and stiffness, lay the foundation for team building and demonstrate the playful nature of the classes, which sets the participants to openness and cooperation and arouses interest in the classes [48].

The creation of actual motivation to participate in the development program should be related to the main motives characteristic of applicants of technical specialties. Realizing that the main aspirations, desires, and interests can be realized through participation in developmental classes, the future IT specialist acquires positive motivation for these classes. Among the main motivations of the students, which we used in the first module of the development program, were those that are most often found at the student age and which are characteristic of future technical specialists.

At the same time, familiarization with the content and expected results of the development program forms a concrete detailed idea of what the development program is and what it is dedicated to. This idea, if it is clear and acceptable to students, can also become a component of positive motivation. Students' awareness of the motivation of the development program leader, the history of his/her interest, and the reasons why they created and are implementing the development program is also a side means of positive motivation of the participants in the program.

The content of the motivational module included the following tasks:

1) the development of positive motivation to participate in the development program through awareness of the possibility of satisfying the leading motives of the student's educational and professional activity;

2) the development of positive motivation to participate in the development program through the formation of awareness of its purpose and content;

3) the development of positive motivation to participate in the development program through the formation of awareness of the development program leader, which caused its creation and implementation;

4) formation of a positive psychological climate of the training group.

At the first lesson, during the conversation, a number of the most significant motives of IT students were determined: the motive to self-improve, develop the ability to regulate emotional states in stressful situations, successfully resolve conflict situations in business and interpersonal communication; the desire to better understand oneself and others, to be successful in various activities (educational, professional); to master the skills of effective communication; to have self-confidence; monetary motives; to have a successful business or freelance. As a result of the discussion of the possibility to realize these motives, the students came to the following conclusions: the content of human motives and the degree of their satisfaction, on the one hand, is a criterion for success, and on the other, it ensures success and self-confidence; strong motives for the youth are those related to communication, love, learning, work and money; students cannot clearly and concretely formulate the means of satisfying most of the motives on their own.

During the classes at this stage, the leader's report on his own motivation for the implementation of this program was presented, and the content of the main modules of the development program was introduced. During the classes at this stage, measures were also taken to create a positive psychological climate of the training group. To realize this goal, the exercises "Eastern market", "Photo album", "Ten seconds", "Break into the circle", "Without a mask" were used (O. Poezdnik; K. Fomenko, M. Savrasov) [15; 21].

**The developmental module.** This module contains a series of activities that contributed to the development of social creativity. The content of the developmental module included the following tasks:

1) awareness of the peculiarities of one's own socio-creative qualities, which contribute to the prevention of conflicts, destructive communicative strategies, and determine the success of group interaction;

2) correction of destructive communication strategies;

3) development of social and creative qualities that contribute to successful professional socialization and professional self-improvement;

4) development of group creativity as the ability to creatively solve problematic tasks in a group (team).

According to the first task, the psychodiagnostic data of the participants of the experimental group in the training was analyzed. In addition,

psychodiagnostics was implemented with further analysis of its results using methods for determining the level of empathy, the structure of social frustration of Wasserman, social isolation of personality by Russell, Ferguson, test of communicative social competence (CSC).

In order to psychologically correct destructive communicative strategies, overcome communicative barriers in the process of social interaction, correct emotional, socio-intellectual and behavioral rigidity, social maladaptation, overcome communicative and moral egocentrism, a number of exercises were implemented, in particular, "Greetings without words", "Island", "First meeting", "Living pyramid", "Molecules". So, when performing the exercise "First meeting", "Negotiations", "Siamese twins", "Suitcase", "Puppet", "Discussion", "Tower of Babel", "Understand feelings", "Intonation", "I know what you dreamed", "Rose bush", "Reincarnation", "Makler", "Healing", "Interpretation technique", "Guess who is listening", "Persuasive speech" (O. Poezdnik; K. Fomenko, M. Savrasov) [15; 21].

To implement the third task (development of social creativity), the following games, exercises and brainstorming activities were performed: "Forecast", "Observation", "Define attitude", "Lace", "Pirate brig", "Conflict", "Cosmic speed", "Money in the center", "Avalanche" "Eraser", "Antonym", "What we love for", "Enemies", "Telephone", "Emotional contact", "Pantomime of emotions"; "Fruit basket", "Choose an animal", "Qualities for communication", "Deserted island", "Social creativity is ...", "Snowflake", "Problem solving", "Six thinking hats", "Stationery clips", "Theatre of abbreviations", "Throw the ball", "Crossing space", "What? Where? How?", "Methods of action", "No direction", "Co-working", "Do nothing, see nothing, say nothing", "Problems, problems ...", "Arch", "Air conquerors", "Bridge", "Living numbers", "Show with movements", role-playing game "Presentation of a unique invention" (K. Fomenko, M. Savrasov) [21].

**The professionally oriented module.** During the first two classes on the topic "Social roles of the IT specialist", measures were implemented to develop the ability to understand and perform social roles. The theoretical part of the class was aimed at psychoeducation on the topic of social roles, role competence (role depth, flexibility, breadth of role repertoire). As cases, the participants filled out the role matrix (professional and role expectations, behavior, harassment). In addition, due to the introduction of the "Network cafe" method, the problems of role scenarios, resolution of role conflicts, definition of group roles of the IT specialist were considered. The practical

part of the lesson included the group game "Carousel", the psychodramatic game "Role conflict", the business game "Group roles in making a group decision". The result of the implementation of the classes was the formation of awareness among the participants about role matrices, scenarios, conflicts; knowledge of their social roles; the ability to define group roles, perform various social roles and resolve conflicts between its participants in the field of professional activity of an IT specialist.

The next series of classes dealt with the topic "Social activity of an IT specialist" and aimed at developing the ability to be a socially active member of society. In the theoretical part, questions about social relations and the role of social activity in a person's life were raised using the conversation method. The practical part involved working in subgroups on the exercise "Forms of social activity", performing individual exercises "Social atom" and "Plan for the development of my social activity". As a result of these classes, the participants began to understand more deeply the role of social activity in professional life, to be aware of responsibility for relations with others; to determine the forms of social activity of the IT specialist; establish contacts with other people (colleagues, clients).

During the next class, the coaching psychotechnologies of the MAK were implemented to promote the professional self-determination of future IT professionals, improving their professional self-concept.

The development of team-building competence of future IT specialists should be based on the same principles as the formation of their readiness to conduct training work. In view of this, it is appropriate to note a number of principles of training a psychologist-trainer to work with clients, proposed by A. Knysh [26], in particular:

1) the presence of psychological education, which provides the specialist with awareness of the specifics of the functioning and phenomena of the human psyche, interpersonal interaction, age and gender characteristics of human behavior, etc. against the background of the formation of the ability to think critically and understand reality, which is a necessary condition for the quality performance of coaching activities;

2) having one's own experience of group work in order to understand the regularities of the functioning of groups and the peculiarities of the manifestations of various group phenomena; based on the fact that group work is not a mechanical performance of the exercises and tasks of the coach, but primarily a dynamic process aimed at the transformation of

relations between group members, one's own experience of participating in trainings and other forms of group work is important for the formation of readiness to work with a group, in particular in the team building;

3) possession of methodical tools necessary for conducting training or other types of group work, which involves approbation of training technologies in one's own experience;

4) the presence of feedback regarding the peculiarities of their management of group work and the quality of the training product prepared by them, which is made possible by the production practice of the psychology student and its assessment by practice methodologists.

N. Volanyuk, G. Lozhkin and M. Fomych determined that the development of team cohesion involves the formation of a common opinion, team spirit, traditions, rules and norms of behavior, the development of values and attitudes, and common interests. According to the authors, the leading factors of the emergence, change and functioning of the phenomena of team cohesion are social existence, social relations, and the immediate basis is the practical activity of team members, their experience and lifestyle [5].

Thus, the program for the formation of the team-building competence of future psychologists should be based on the principles described above, of which the third requires special attention, which involves the systematization of team-building psychotechnologists. V. Gorbunova systematized the main techniques and tools in the implementation of team creative activities. The author notes that the development of technical tools should be carried out within the methodological limits of the value-role paradigm, which enables the theoretical-methodological congruence of the approach and the verification of the effectiveness of team-building technologies [6].

V. Gorbunova systematizes a number of techniques used in team-building events according to the following criteria: the field of application (orientation to work with implicit theories, behavioral models, as well as the process of interaction in teams), the specificity of interventions (educational, analytical, modeling, and transformational techniques), as well as the goal, that is, direct team-building tasks implemented in the course of application [6].

The presented team-building techniques are used in various formats, taking into account the organizational capabilities that the customers of team-building events have, but as V. Gorbunova notes, the most effective is the format of social-psychological training, in which the participants continuously

for a certain period of time are in intensive, specially organized interaction, focused on the tasks of informing (psychological education) about the effectiveness of team activity, its causes and mechanisms; as well as analysis, modeling and transformations of team interaction itself. However, as the author claims, in other conditions it is possible to implement a complex of techniques in the format of studios, clubs, hearings, focus groups, etc. [6].

V. Gorbunova emphasizes the importance of a certain sequence of implementation of team building techniques, starting with methods of analysis and development of implicit theories and behavioral models of team interaction, and ending with techniques focusing on the optimization of direct processes of value-role interaction in teams. Here is a description of the basic team building techniques [6].

The techniques of explication of team interaction values of an individual are aimed at working with implicit theories of team interaction, and involve psychoeducation on the problems of implicit theories, analysis of individual values that regulate the sphere of team relations and activities, and their influence on the group. This type of technique involves the procedure of introducing program participants to the problem of value-role interaction in teams, explaining the phenomena underlying team interaction, in particular, value regulation of relationships and joint activities. In general, this is educational work, which involves the use of various methods of informing the participants of the program: the introduction of mini-lectures with the presentation of the model of implicit theories of team interaction, the use of information lists, iconography; application of methods of analysis and discussion of cases with access to the model, aimed at directing the attention of participants to their own implicit theories of team interaction in their value content (Zh. Bogdan) [25].

Explication of the value content and organization of individual reflection of the values of teamwork are entrusted to the regulation of the individual study of the values of team relations in the sense of the application of specific analytical techniques based on the reflection by the participants of team-building activities of their own values, on the basis of which decisions are made, interaction in the team is built, and people and their actions are evaluated (Zh. Bogdan) [25].

As noted by V. Gorbunova, it is methodologically expedient not to offer ready-made values, but to give the participants the opportunity to independently reflect on what is important in teamwork and to determine the

general and situational priority of the work. For this purpose, the participants are invited to build a pyramid of their own team values, or a value solar system, depict priorities and values graphically, reconstruct them with the help of projective materials and bring them to a group discussion in the mode of "reflection on a circle"; in addition, psychodramatic stagings are used. In the course of feedback, participants receive information about the degree of conformity of individual opinions with group opinion, areas of closeness and divergence in self-perception and team perception are analyzed (Zh. Bogdan) [25].

*The techniques of reconstruction of the value content* of an individuals team roles are aimed at working with implicit theories of team interaction, namely with its role components. These techniques provide for the formation of the certainty of the main roles in the team; carrying out the analysis of their subjective value capacity and implementing the reconstruction of the unique value content with its presentation in the group. In order to determine the main team roles in the group, the use of brainstorming with the classic distribution of functions between participants is provided, work in subgroups with a presentation of the results in a circle with further analysis of the joint group role structure resulting in a ready-made role model, or a model in which the roles do not belong to production functions, but to the specifics of team interaction.

The reconstruction of the subjective value content of roles is implemented through the use of psychosemantic tools to construct the semantic spaces of team roles according to the scheme of value-role spaces of team interaction (according to an authentic value list) or through the procedure of value-role mapping (according to a predetermined list of values). In addition, techniques of analysis of each individual role are introduced using elements of graphic, projective, psychodramatic or other modeling options (Zh. Bogdan) [25].

*The techniques of reconstruction of the role repertoire of the individual* are aimed at work in the field of implicit theories and behavioral models of team interaction, which involve psychoeducation about behavioral models of team interaction and their connection with implicit theories; implementation of role analysis, which each participant "fits on" and presentation of individual role repertoires for the group. It is possible to apply a free role description according to the structure of roles (roles-production functions; roles-strategies of activity; roles-strategies of relations). In order to present the results of

individual reflection of the participants' role repertoire, modeling techniques and behavioral mini-enactments of roles are used (Zh. Bogdan) [25].

*Techniques for the development of the value complexity of the individual in team interaction* are aimed at demonstrating the value multifunctionality of the role behavior of the individual and weakening the causality of the perception of each other by the team members. Within these techniques, a case analysis of the characteristics of team members, cognitive-behavioral therapy techniques, namely working with negative automatic thoughts, distortion analysis techniques, filtering thinking, searching for alternative explanations, and evidential verification of thoughts are used. In this way, the analysis of stereotyped thoughts-explanations of behavior and actions of team members, rigid value-role attribution, categorical conclusions and interpretation is possible. In addition, participants are involved in creative activities, a team game is organized in the format of solving a specific production task (Zh. Bogdan) [25].

*The techniques of analysis of individual strategies for the implementation of values of team activity* are aimed at studying the effectiveness of one's own strategies of activity in a team, the way of implementation of team values. Variants of the techniques are the search for ways of responding typical for each participant in the actual time period of team interaction, based on the analysis of one's own behavior during the pre-organizational team game, the technique of working in a reflexive circle, for example, in the format of Gestalt-therapeutic "hot chair" procedures (Zh. Bogdan) [25].

*Techniques for optimizing strategies for realizing the values of an individuals team activity* are based on the principles of cross-culturality, spontaneity and creativity, and therefore are aimed at expanding the strategic repertoire, finding and developing new effective strategies for realizing the values of team activity. The implementation of these tasks is based on the adoption and search for new strategies due to analyzing the effectiveness of ways to achieve close values by friends, colleagues, acquaintances, persons from the reference circle and borrowing, integrating the most effective of them into one's own experience.

The techniques of positive psychotherapy are used here through the analysis of the question "How would another person do it?", the analysis of ideal roles from the actual role structure of the team through the use of work in subgroups, group discussion, presentation and discussion of own

strategies in the format of sharing the experience of achieving the desired, analysis of fiction films, video fragments of real team interaction, problem-centered cases, simulation of group interaction according to the "aquarium" scheme, real team activity with the possibility of efficiency analysis application of new strategies in the group (Zh. Bogdan) [25].

*Techniques for analyzing the role competence of an individual* are aimed at individual reflection of the variability of one's own role repertoire, role flexibility, depth, as well as the ability to decenter the role and accept the roles of others. This group of techniques involves a video analysis or description of cases of behavioral manifestations of role competence and role disharmony of the personality in team interaction, mini-lectures with multimedia support, psychodiagnostics and analysis of results according to the questionnaire of role competence by P. Gornostai [7], a psychosemantic toolkit for reconstructing life events related to the team activities of participants in the space of role competence parameters (Zh. Bogdan) [25].

*Techniques for the development of role competence of an individual* are aimed at expanding the role repertoire in the field of team interaction, expanding the role repertoire and developing flexibility, promoting role reflection, the ability to understand the roles of another person, and to take them on. The realization of the purpose of these techniques is made possible by role competence training developed by P. Gornostai [7], which involves the use of tools of transactional analysis and psychodrama, techniques of analysis and switching of ego states, analysis of conflict and the search for effective transactions in communication, dramatization of role conflicts, modification of the conflict situation through role exchange, duplication, etc., as well as through techniques of cognitive-behavioral experiments, playback theater, dance-movement therapy, the technique of working with a "fixed role sketch" by G. Kelly, biographical analysis, the technique of causometry (Zh. Bogdan) [25].

*The techniques of reconstruction of value-role interaction in teams* are aimed at determining the specificity of team interaction in its value-role essence, identifying the value closeness/remoteness of individual team members in the perception of themselves, individual team roles, reconstruction of role convergence, complementarity, and divergence, incomparability of roles in situations of role interaction; weighing role expectations. For this purpose, the team cartography procedure is used, aimed at determining the value conjunction and disjunction of individual team roles and specific team

members in their group perception, which allows creating group team maps of individual roles, evaluations and self-evaluations of team members, as well as maps team interaction in the perception of each of its participants. The methods enabling the tasks of these techniques are graphic, projective, psychodramatic modeling based on metaphors (Zh. Bogdan) [25].

*The techniques for promoting the value conjunction of team members* are aimed at finding areas of value closeness in the perception and evaluation of certain aspects of team interaction, achieving an understanding of the content of team roles, attitudes towards the actions of colleagues. This task is made possible by applying a modification of the causometry technique of Ye. Golovakha, O. Chronik (cited by V. Gorbunova [6]), where separate team events of the past are analyzed, which are happening in the present and are planned for the future, between which causal and value connections are established, groups of people with a close value interpretation of events are singled out, opinions are exchanged between members of such groups (Zh. Bogdan) [25].

*Techniques for promoting role convergence of team members* are the final block of techniques that are used to practice the skills of effective interaction in teams through modeling team interaction, entering the real space of team activity, solving urgent production problems, which is implemented in role training, business team games and analysis of actual experience of real interaction, value-role cartography for comparative analysis of team value map roles, as well as individual value-role maps of team interaction at the beginning and at the end of team-building interventions [25].

The presented techniques for the development of team creative and role competence were included in the content of the development program represented by training and a special course. During the training, the following tools were used: exercises "Possible ways of using the object", "Common features", "Listing of features that do not fit the given profession", "Story", "Word", "Hokku", "Three words", " Missing words", "Slogan", "Search for contradictory objects", "Chain of associations", "Tree of associations", "Binome of fantasy", "Tracing tale", "The main techniques of fantasy in literary creativity", "Constructing a metaphor", "Metaphor", "Oxymoron", "What do you think about it?", "Shark's pen", "Associations", "Attributive list", "Brutethink", "Rory's Story Cubes", "Freewriting", "Paper clips", "Theater of abbreviations", "Roll the Ball", "Intersection of space", "What? Where? How?", "Methods of action", "No direction", "Co-working", "Doing nothing, seeing nothing, saying

nothing", "Problems, problems ...", "Arch", "Conquerors of the air", "Bridge", "Living numbers", "Show with movements"; the role-playing game "Presentation of a unique invention", as well as the lecture "Techniques of team building"; exercises "Interesting stories", "I'm worried about what's in the box", "Group video", "True / false", "Magician", "We do everything at the same time", "Text with subtext", "How similar we are!"; situational game "Theft"; "Keyboard", "Circle of Trust", "Pavutinka", "Koloda", "Skoromovka"; "Arka" method for determining group cohesion (A. Antoshkiv; O. Poezdnik; K. Fomenko, M. Savrasov) [2; 15; 21].

## 2.7. The results of a longitudinal study of the development of future specialists' communication soft skills

Positive dynamics of the indicators of communicative abilities after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communicative skills. No pronounced dynamics of communicative abilities was found among students of other specialties (Fig. 2.40).

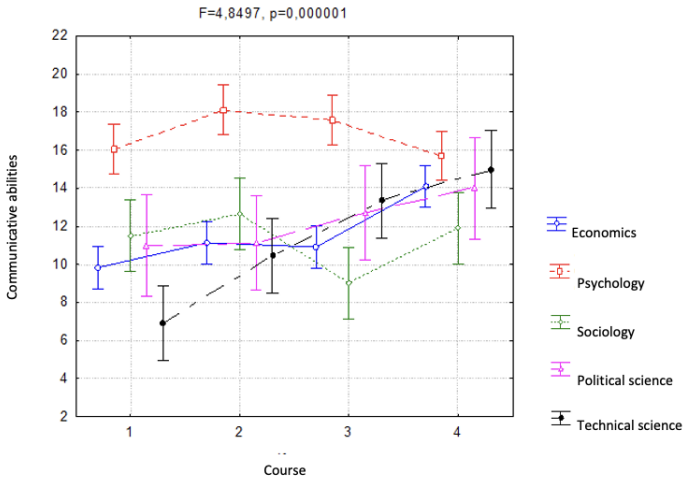


Fig. 2.40. **The dynamics of indicators of communicative abilities**

Weak positive dynamics of the indicators of ease of communicative creativity after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communicative skills. Among future politologists, negative dynamics of ease after the second year was determined, among other students, this dynamics is non-linear (Fig. 2.41).

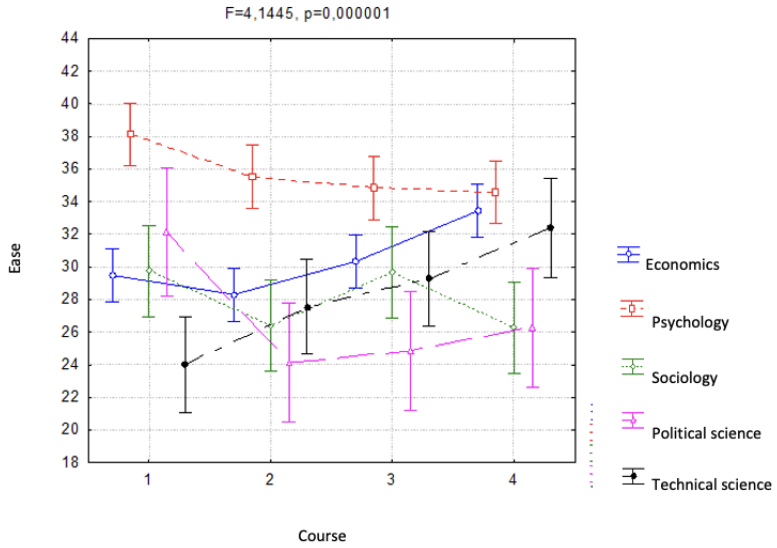


Fig. 2.41. **The dynamics of indicators of communicative ease**

Positive dynamics of indicators of communicative competence after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills. Future psychologists experienced a decline in communicative competence indicators after the first course (Fig. 2.42).

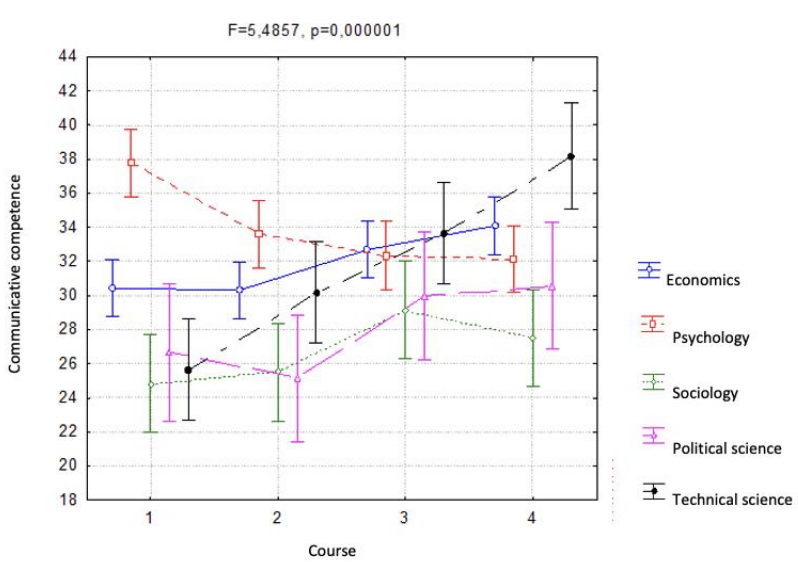


Fig. 2.42. **The dynamics of indicators of communicative competence**

Positive dynamics of the indicators of the ability to predict the consequences of behavior in social interaction after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.43).

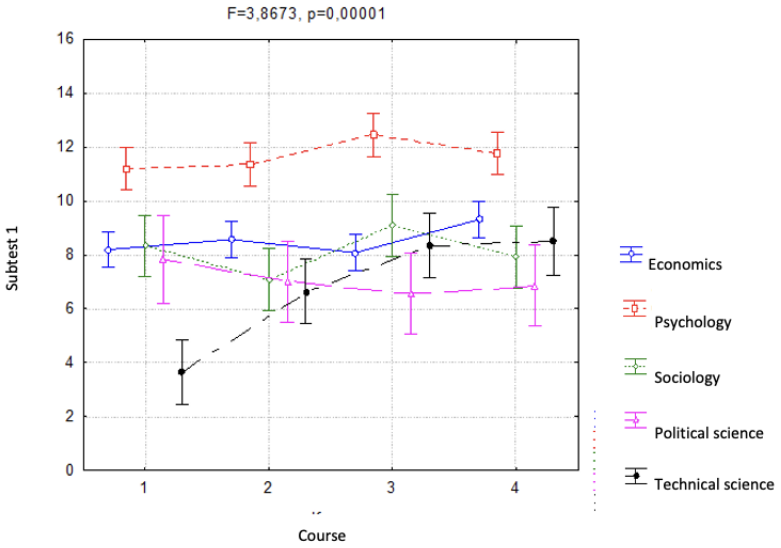


Fig. 2.43. **The dynamics of indicators of social intelligence according to the factor of knowledge of the results of behavior**

Positive dynamics of indicators of the ability to understand non-verbal manifestations of behavior in social interaction after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.44).

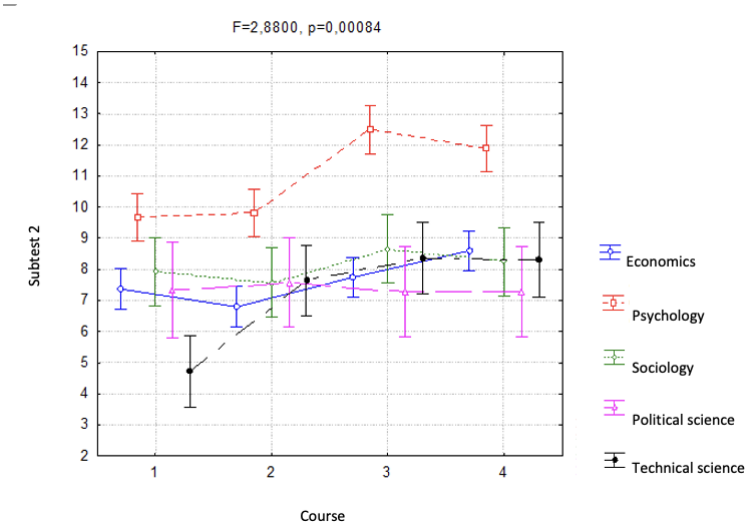


Fig. 2.44. **The dynamics of indicators of social intelligence according to the factor of knowledge of classes of behavior**

Positive dynamics of the indicators of the ability to understand verbal messages in social interaction after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.45).

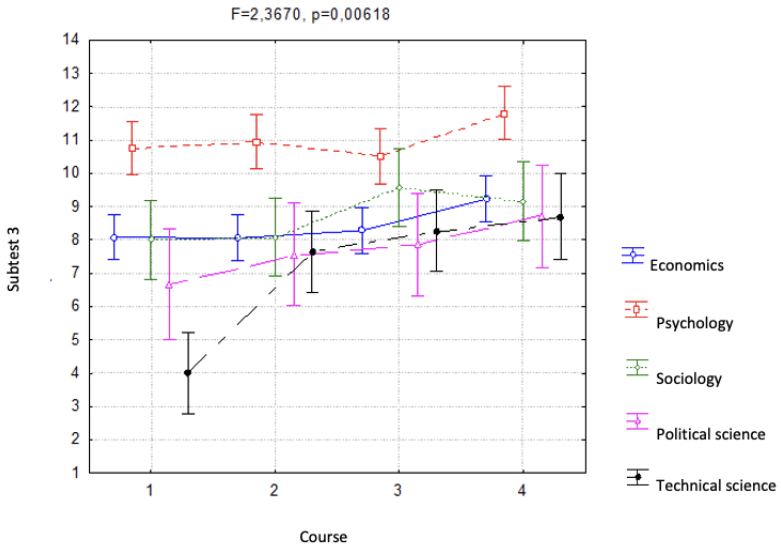


Fig. 2.45. **The dynamics of indicators of social intelligence according to the factor of cognition of behavior transformations**

Weak positive dynamics of the indicators of the ability to understand the principles and patterns of human behavior in social interaction after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.46).

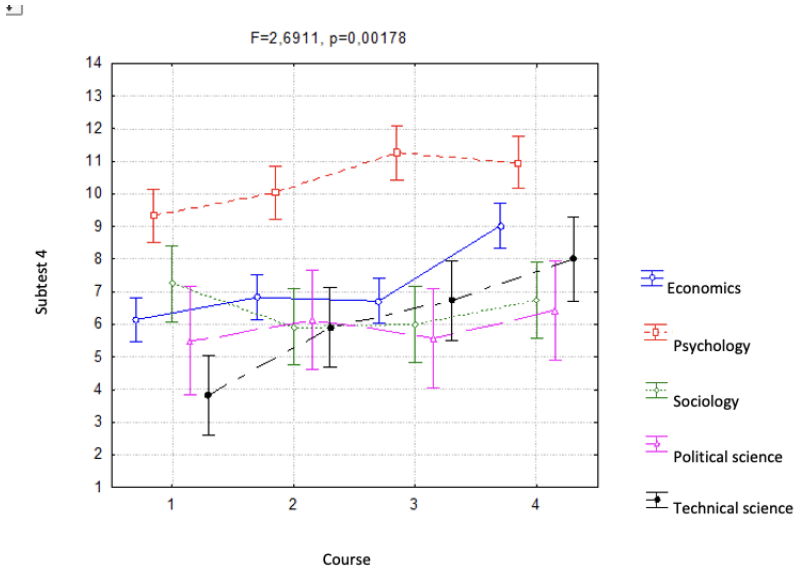


Fig. 2.46. **The dynamics of indicators of social intelligence according to the factor of knowledge of behavior systems**

Rapid positive dynamics of indicators of social creativity after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.47).

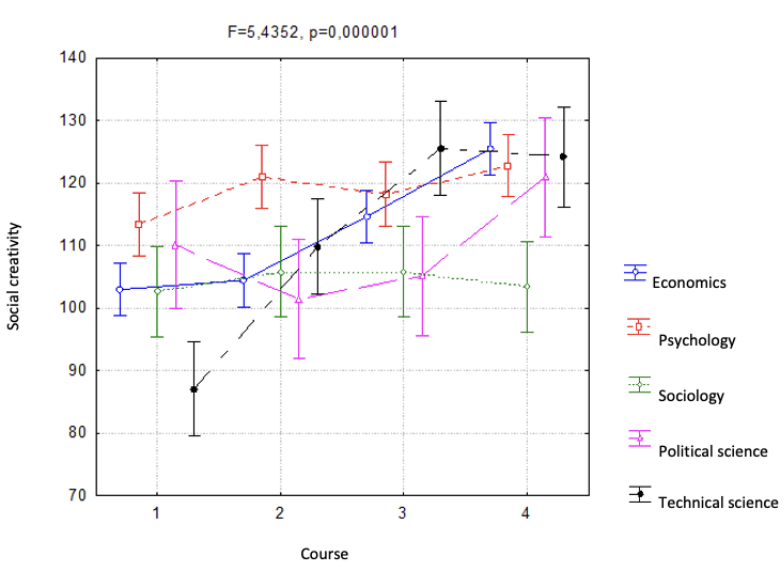


Fig. 2.47. **The dynamics of indicators of social creativity**

Rapid positive dynamics of indicators of team-building competence after the first course of training was determined among technical students who were involved in the program of psychological support for the development of communication soft skills (Fig. 2.48).

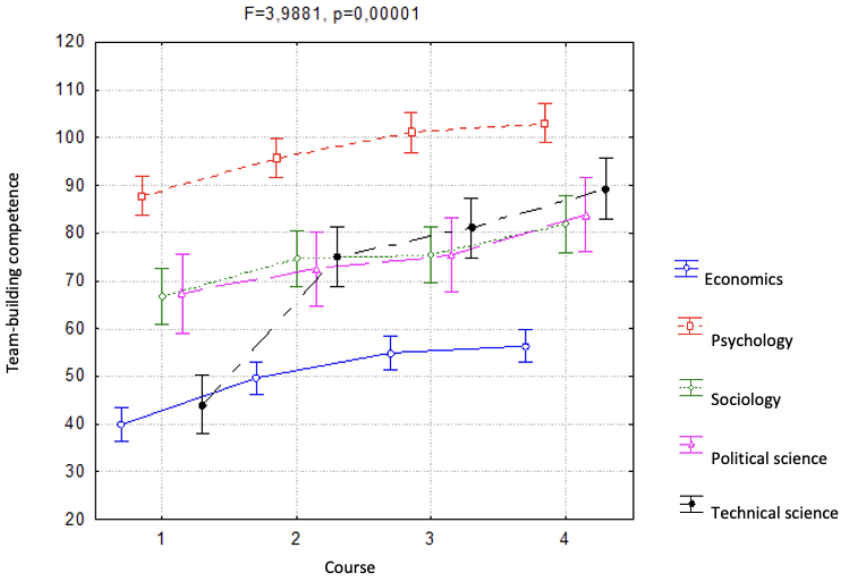


Fig. 2.48. **The dynamics of indicators of team-building competence**

Rapid positive dynamics of indicators of organizational abilities after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.49).

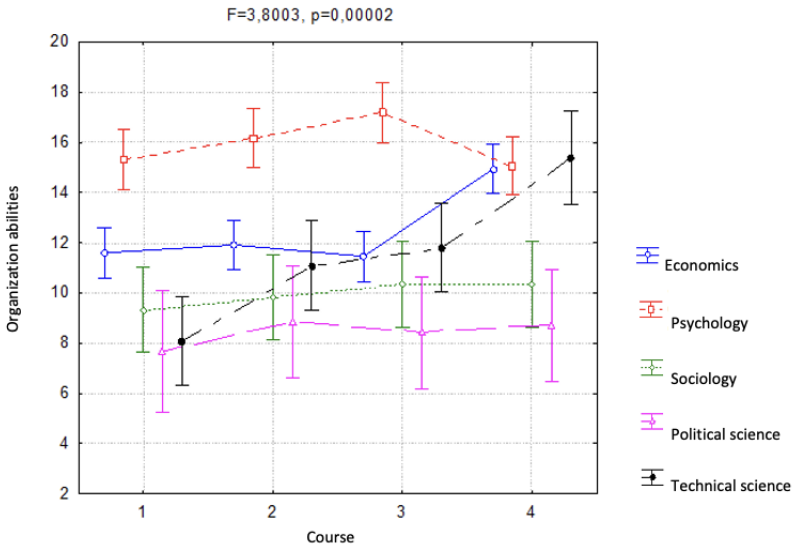


Fig. 2.49. **The dynamics of indicators of organizational abilities**

Rapid positive dynamics of indicators of self-monitoring of self-presentation and self-control in social situations was determined after the first course of study among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.50).

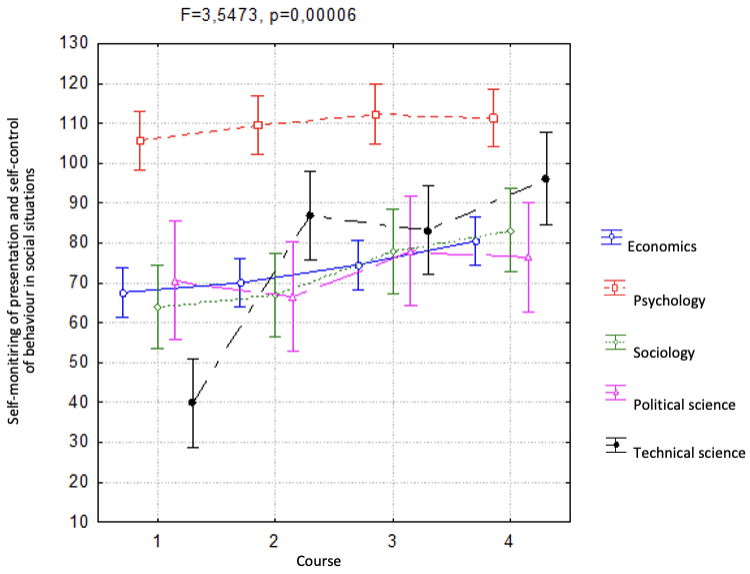


Fig. 2.50. **The dynamics of indicators of self-monitoring of self-presentation and self-control in social situations**

Rapid positive dynamics of indicators of self-presentation of communicative creativity after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.51).

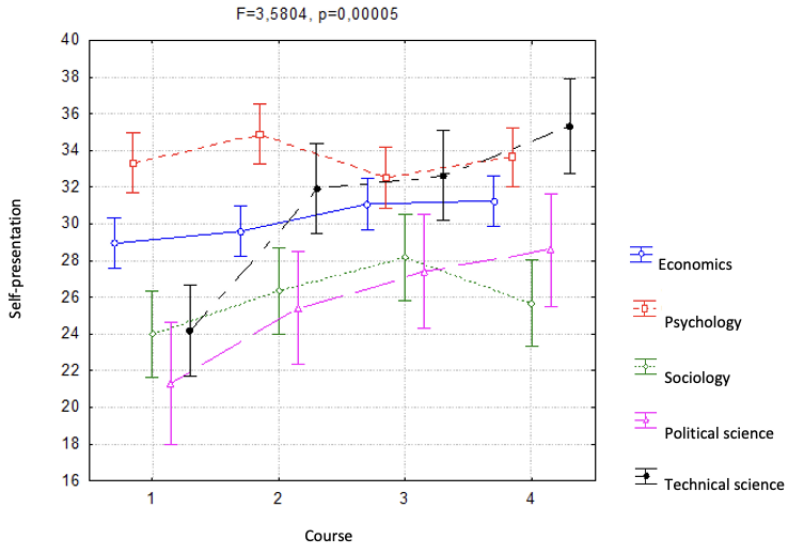


Fig. 2.51. **The dynamics of indicators of communicative creativity self-presentation**

Rapid negative dynamics of the indicators of the distributive style of conducting negotiations after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.52).

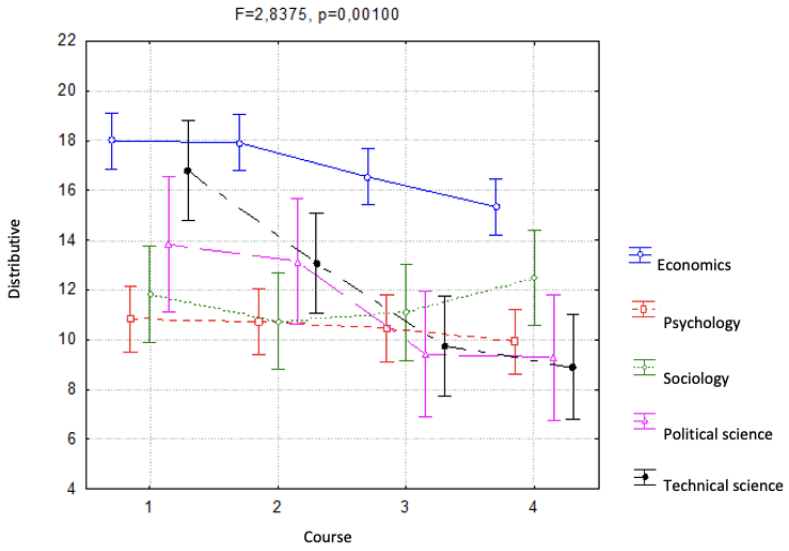


Fig. 2.52. **The dynamics of indicators of distributive negotiation style**

Rapid positive dynamics of indicators of the partner-oriented style of conducting negotiations after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.53).

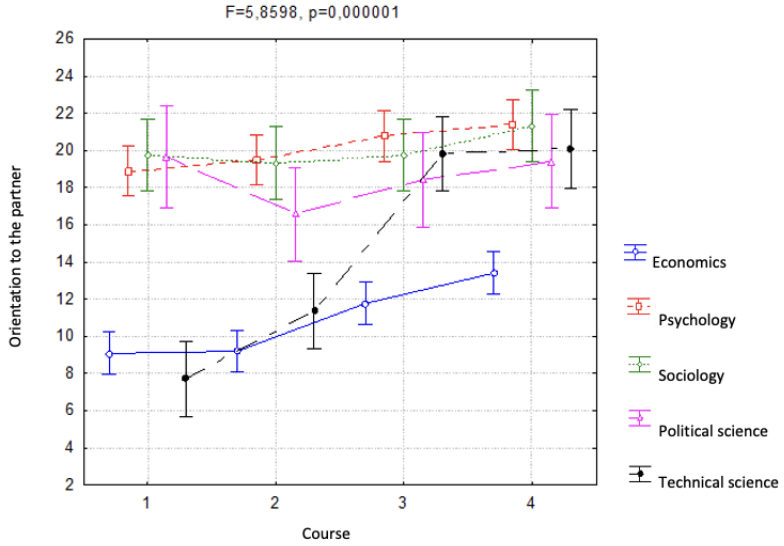


Fig. 2.53. **The dynamics of indicators of partner-oriented negotiation style**

Rapid positive dynamics of indicators of the situation-oriented negotiation style after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.54).

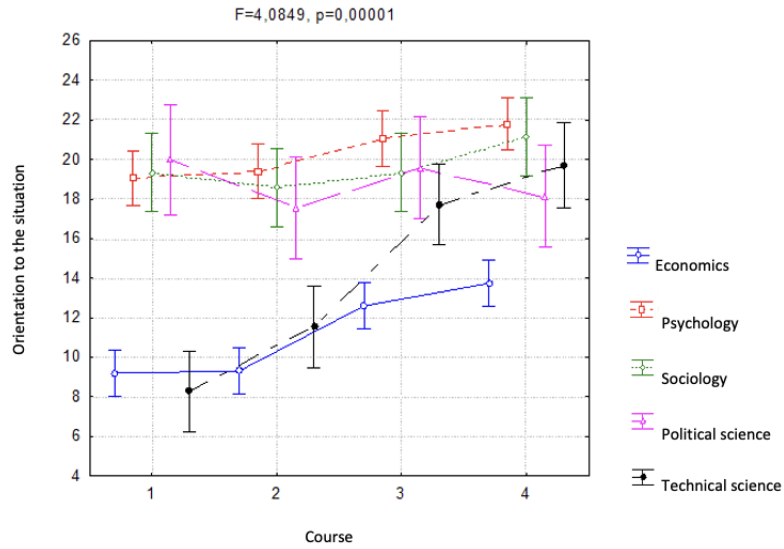


Fig. 2.54. **The dynamics of indicators of situation-oriented negotiation style**

Rapid positive dynamics of indicators of the ability to resolve role conflicts after the first course of study was determined among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.55).

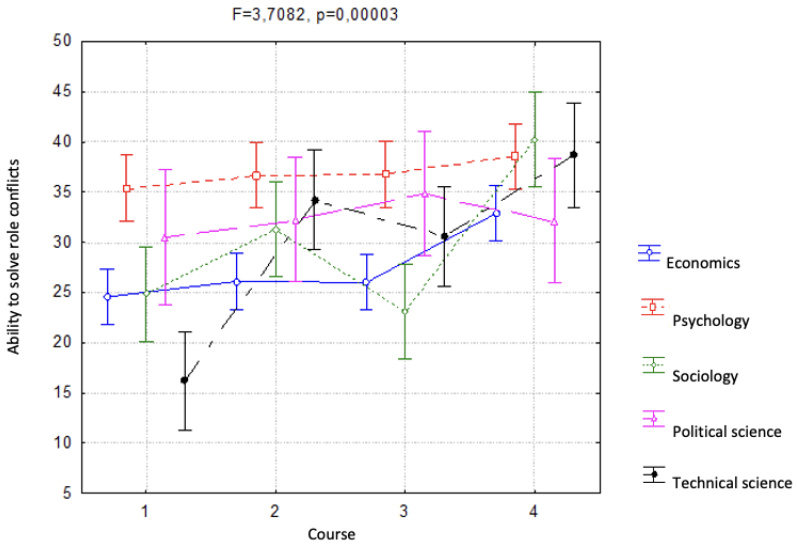


Fig. 2.55. **The dynamics of indicators of the ability to resolve role conflicts**

Rapid positive dynamics of indicators of a dialogic style of communication after the first course of study was revealed among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.56).

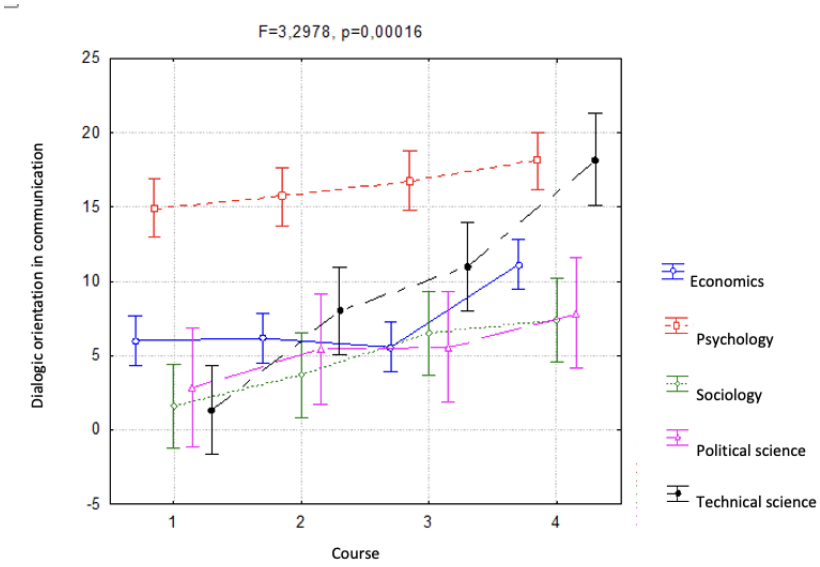


Fig. 2.56. **The dynamics of indicators of dialogic communication style**

Rapid negative dynamics of the indicators of conflictness of communication creativity after the first course of study was revealed among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.57).

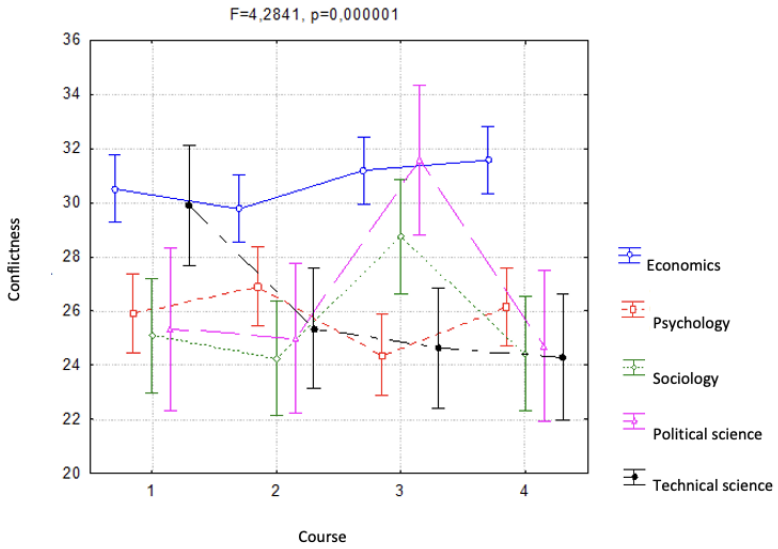


Fig. 2.57. **The dynamics of indicators of communicative conflictness**

Rapid positive dynamics of communicative independence after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.58).

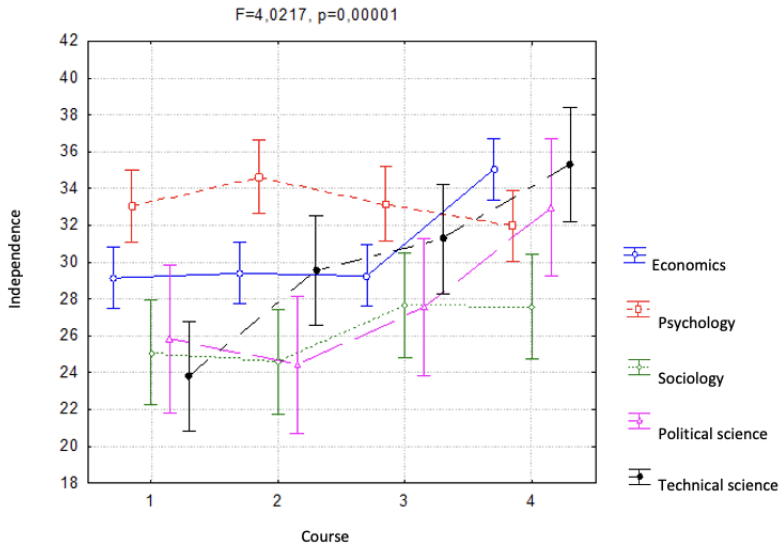


Fig. 2.58. **The dynamics of indicators of communicative independence**

Rapid positive dynamics of emotional stability in communication after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.59).

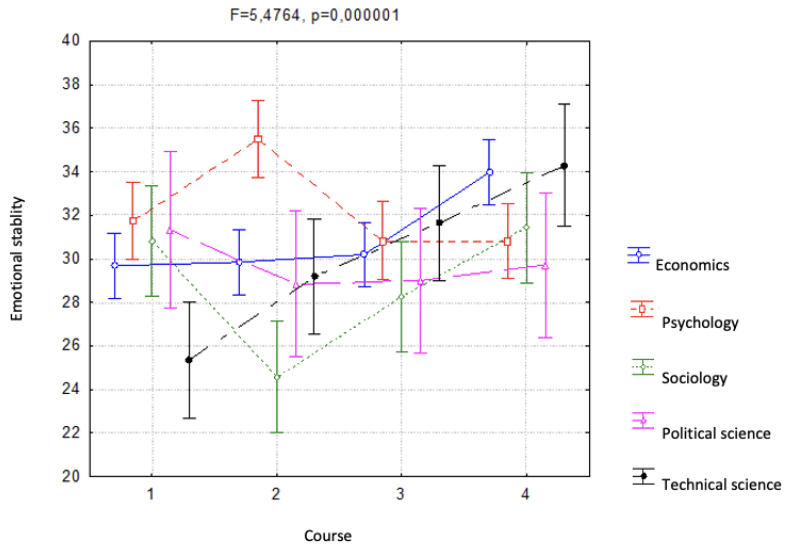


Fig. 2.59. **The dynamics of indicators of emotional stability in communication**

Insignificant negative dynamics of indicators of communicative creativity manipulativeness was determined after the first course of study among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.60).

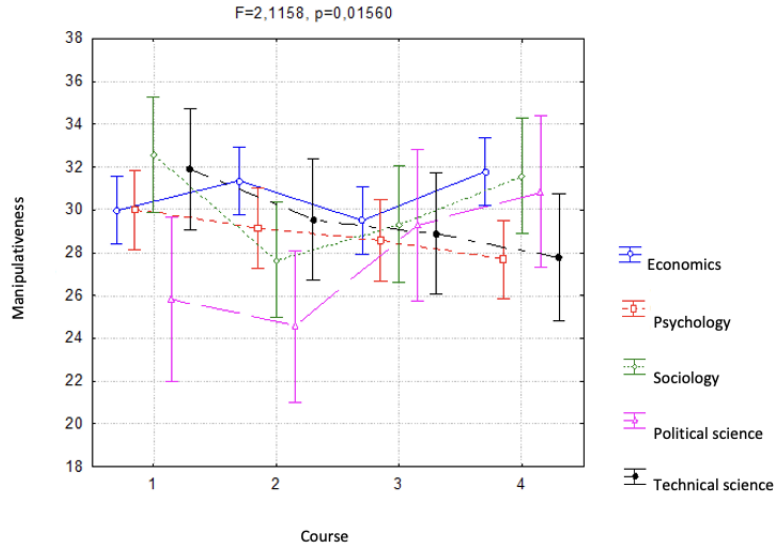


Fig. 2.60. **The dynamics of indicators of communicative manipulativeness**

Insignificant positive dynamics of the indicators of storytelling and correspondence skills was determined after the first course of study among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.61).

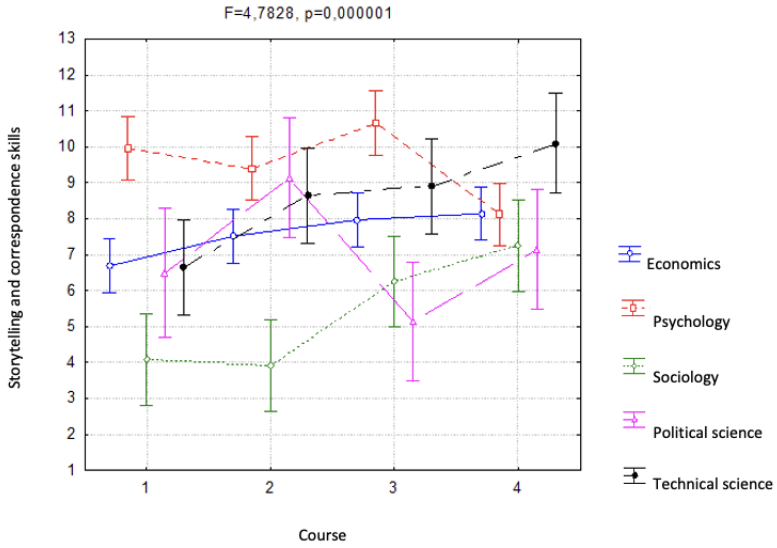


Fig. 2.61. **The dynamics of indicators of storytelling and correspondence skills**

Positive dynamics of indicators of communicative expressiveness after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.62).

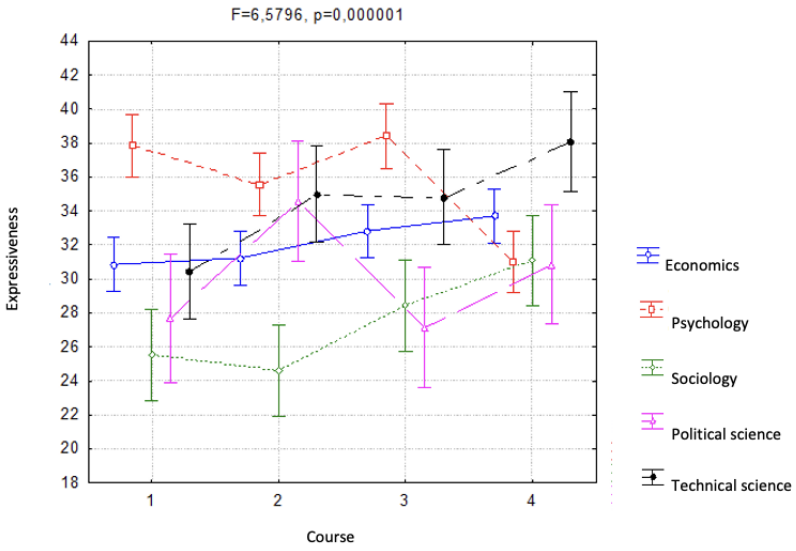


Fig. 2.62. **The dynamics of indicators of communicative expressiveness**

Positive dynamics of indicators of communicative tolerance after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.63).

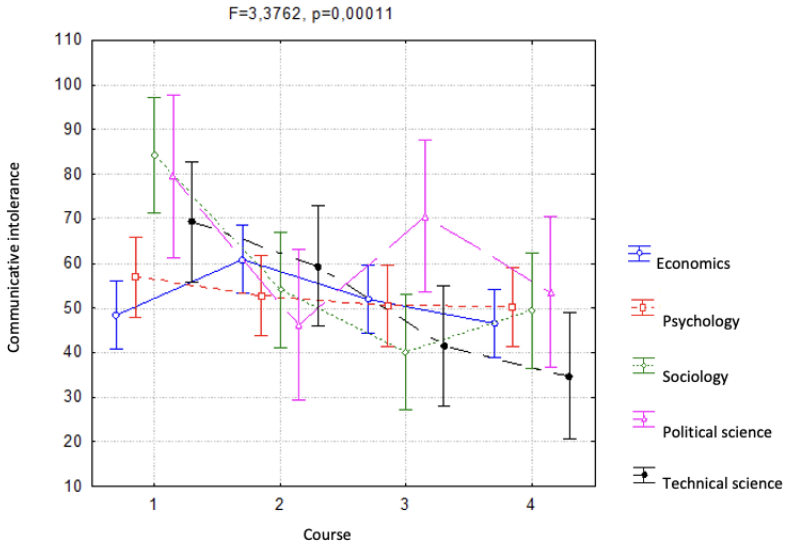


Fig. 2.63. **The dynamics of indicators of communicative intolerance**

Positive dynamics of indicators of awareness of international business etiquette after the first course of study was found among technical students who were involved in the program of psychological support for the development of soft communication skills (Fig. 2.64).

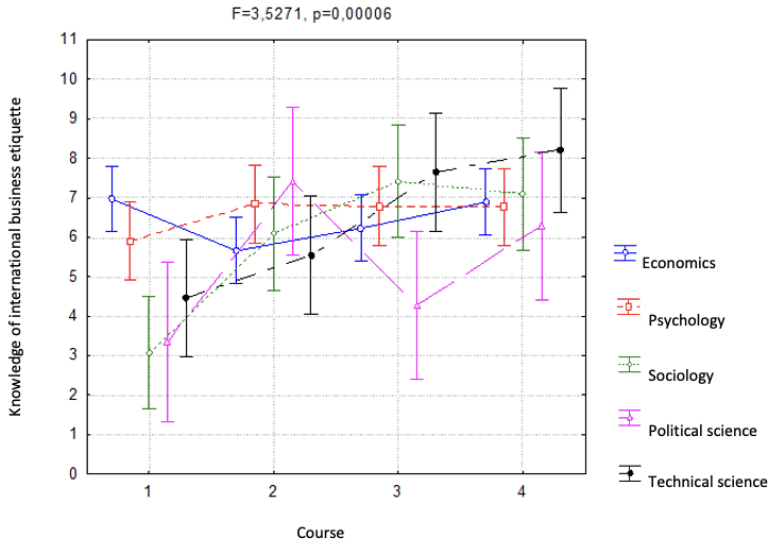


Fig. 2.64. **The dynamics of indicators of awareness in international business etiquette**

Conceptualization of a number of communication soft skills made it possible to define a list of the main ones: 1) skills of verbal and non-verbal interaction and communication; 2) social intelligence and social-perceptive skills; 3) social creativity; 4) the ability to resolve conflicts; 5) teamwork skills (team building and organizational skills); 6) self-presentation ability, public speaking skills and oratorical skills; 7) writing and speaking skills (expressiveness of speech and correspondence and storytelling skills); 8) the ability to persuade; 9) the ability to negotiate; 10) skills of intercultural interaction and communication.

## Conclusions

A comparative analysis of communication soft skills of future specialists in the field of knowledge 05 "Social and Behavioral Sciences" – psychologists, sociologists, politologists, economists – with specialists in the technical field showed an advantage in their development among future psychologists; on the other hand, future IT specialists are inferior to other specialties in terms of the level of development of all communicative skills.

The academic performance of future specialists turned out to be insignificant for the development among communication skills. Successful psychologists have an advantage only in the level of development of social intelligence as an indicator of the ability to predict the results of behavior. Politologists who are more successful in their studies have more pronounced skills in intercultural interaction and storytelling, and more successful economists have skills in conflict resolution.

According to the results of the correlation analysis, it was established that the system-creating nature of the development of communication soft skills is innate to the abilities of social creativity and social intelligence, which are characterized by the greatest number and strength of connections with other communication soft skills. In addition, the significance of the ability to resolve role conflicts and team creative competence, which are derived from social-intellectual competence in the process of formation of the communicative sphere of the individual, is essential. Socio-intellectual abilities, social creativity, role and team-building competence were psychological targets in the creation of a development program for future specialists.

The program for the development of communication soft skills, aimed at the development, first of all, of social intelligence and creativity, role and team creative competence, was implemented with students of technical specialties, who are significantly inferior to future specialists in the field of social and behavioral sciences in terms of the level of development of communication soft skills as a whole.

According to the results of a longitudinal study, an increase in indicators of communication soft skills was found only among technical students in the period from the first to the second year after the implementation of the development program with them. In other specialties, there were no changes in the level of development of communication soft skills. Upon completion of bachelor's studies, future IT specialists have reached the level of development of communication soft skills, which was established for psychologists, who

are ahead of representatives of other professions. Such results testify in favor of the expediency of implementing communicative trainings and programs, taking into account the development of social creativity, social intelligence, team-building and role competence, with future specialists at the beginning of their studies in higher education institutions.

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# Chapter 3. Cognitive and metacognitive soft skills of future specialists

## 3.1. Theoretical justification and operationalization of metacognitive soft skills of future specialists

According to the author's original concept of soft skills for future specialists, the content of cognitive and metacognitive soft skills includes the following components: cognitive flexibility and speed of thinking, activity, creativity, metacognitive strategies, strategic learning as the ability to learn, systemic thinking, curiosity, and critical thinking.

*Flexibility of thinking* enables individuals to go beyond the established frameworks, remove existing blocks, and generate unconventional and extraordinary ideas [22]. In cognitive psychology and neuro-linguistic programming, the term "cognitive reframing" is sometimes used to describe the flexibility of thinking, which is a psychological method, that consists of identifying and then changing the way of viewing situations, experiences, events, ideas and/or emotions [45], so the ability to cognitively reframe is essentially a manifestation of flexibility of thinking. Reframing is primarily seen as a tool for the rapid transformation of unproductive emotional states into constructive ones, and since, in CBT (cognitive behavioral therapy) and NLP (neuro-linguistic programming), this is made possible through cognitive restructuring. The flexibility of thinking allows for the rapid transformation of maladaptive emotional states and adaptive ones through a change of mind. The main idea of cognitive reframing is that the situation itself remains the same, but the individual can view it in a different context and "change the frame". A certain life situation will not be meaningful for a person until it is placed in one of their personal frames, which are formed on the basis of life experience, habits, and stereotypes. The mechanism of reframing does not involve distortion or disguise of reality but instead allows a comprehensive view of the situation [cited in 17]. Reframing is the reformation of a person's internal mental processes that make it possible to model their own behavior. The goal of reframing is to shift one's perspective so that it is more action-oriented and learning-oriented. According to cognitive scientists, by changing the meaning of a situation, you can change your feelings and then your behavior. Reframing is a powerful way to tap into the body's latent resources

to change attitudes towards a problem. In the context of changing attitudes toward a problem, the term "changing the size of the frame" is meant, which is associated with the transformation of the breadth or depth of the view of the situation rather than with a change in the specific outcome considered within a particular frame. A "frame" – a psychological framework – is associated with a general orientation that determines a person's thoughts and actions, setting limits in interaction with the world around us. First of all, these limitations influence the interpretation of individual experiences and events, as well as the reactions that these events cause, since it is the frames that "place emphasis" on these experiences. Frames optimize interaction and increase productivity by clearly delineating incoming information according to the criterion of compliance or non-compliance with the purpose of this interaction. Thus, the "extra" part of the data flow that does not coincide with the boundaries of the frame is ignored. However, the very information that has not passed this "selection" can be much more valuable than anything that the framework allows the consciousness to accept. Thus, reframing contributes to an adequate perception of reality when it is carried out continuously, allowing you to alternate the angle of view on the problem and to look at it from different angles, which is ensured by the flexibility of thinking.

Thus, reframing is one of the most effective methods of overcoming patterned thinking and changing attitudes towards a situation, not so much a method of activating thinking as a way of organizing it properly. The flexibility of thinking, in the author's opinion, makes it possible to implement the reframing mechanism and is a soft skill of a specialist.

*Abnotivity* as an ability to creative joint activity of a teacher and a student was considered in the works of Y. Adusheva, T. Dotsevych, M. Kashapov, T. Khomulenko, M. Savrasov, K. Fomenko as a metacreative ability, and in this study – as a soft skill of a specialist. Initially, abnotivity was considered as the ability of a higher education teacher to promote the development of a student's personality and is characterized by the focus of the teacher's personality on the learning task and on the subject of learning activities [4]. In the presented study, the abnotivity of a future specialist is defined as the ability to explain the purpose, content, and methods of solving educational tasks to other students and to perform educational tasks together with other subjects of educational and professional activities. The author understands this ability as the result of the realization of the educational goal,

the methodological armament of the student, and a prerequisite for successful professional activity.

*Creativity* is often understood as the creative abilities of an individual, combining the concepts of creativity and abilities. Without denying the primary importance of creativity in the realization of creative activity, it is necessary to emphasize the expediency of understanding this term more broadly as "...the ability to generate new ideas, solutions, methods, theories, and any new products of activity in general" [19, p. 199]. Thus, creativity is a motivated ability to engage in any innovative activity. On the other hand, considering creativity as "...the level of creative endowment, creativity abilities that are manifested in thinking, communication, certain types of activities and constitute a relatively stable characteristic of a person" [8], it is necessary to emphasize its status as a personal characteristic of a person who creates, shows creative activity, and this characteristic can apply not only to creativity as an activity but also to educational and professional activities as leading at different stages of ontogenesis. It should also be pointed out that reducing creativity to a purely intellectual characteristic or to a function, type, or derivative property of intelligence is impossible. In the modern sense, creativity is more often defined as "... an irreducible function of an integral personality that depends on a complex of its psychological characteristics" [19, p. 181].

S. Maksymenko considers creativity as one of the principles of building a genetic-modeling method of personality research, defining it as "...a deep, primordial and absolutely natural feature of personality – it is the highest form of activity that creates and leaves a trace, is embodied. On the other hand, creativity means the desire to express one's inner world" [13, p. 65].

M. Savrasov notes that creativity as a psychological characteristic of a personality and a subject determines the productivity of activity (directly contributing to the emergence of a new product, concept, method of solution, theory, etc.) in situations characterized by a high level of uncertainty [20].

Thus, it is advisable to consider the creativity of the individual today as a specialist's soft skill and to consider the development of creativity in the system of soft skills of future specialists, regardless of their specialty.

*Metacognitive strategies and cognitive learning strategies* are a reflection of a person's metacognitive abilities and are aimed at regulating his or her cognitive activity. Metacognitive regulation is mental structures that carry out involuntary and voluntary regulation of intellectual activity and is

associated with the ability to monitor the cognitive process without external stimuli or control, to use the most relevant cognitive and metacognitive strategies to the task conditions, which are a specific sequence of actions aimed at planning and controlling cognitive processes, as well as correlating their results with the goals of activity [20].

Metacognitive strategies are used in relation to cognitive strategies for extracting and analyzing information [5], and involve analyzing the degree of effectiveness of the initial strategy for solving the problem and moving to its transformation, which is realized through the dialectical effect of changing the alternative, transforming the original strategy. Metacognitive strategies are realized through the transformation of one previously found strategy by means of dialectical mental actions of transformation or circulation or through the transformation of two or more previously found strategies by means of the dialectical mental action of unification [cited in 5].

Metacognitive strategies are a set of mutually coordinated processes that regulate the procedural and productive aspects of a subject's cognitive activity. The purpose of metacognitive strategies is to monitor, evaluate, and correct cognitive processes and strategies. A person goes beyond the cognitive process through metacognitive abilities, making it the object of his or her observation, analysis, evaluation, and interpretation. Assessment of the current state of the problem and one's own state is possible through the established system of standards (anti-cycling schemes) that allow for comparison, determining deviations from the expected state [37].

Metacognitive strategies are designed to guide the study, memorization, and understanding of the material and involve repetition, organization and processing, planning, monitoring, and regulation of students' cognitive activities to implement cognitive strategies. The use of metacognitive strategies in teaching makes it possible to develop the ability to learn, which positively impacts the implementation of basic educational standards. Formation of the ability to learn independently by students and other subjects of activity is the leading advantage of using metacognitive strategies. Metacognitive strategies, in turn, are a specific sequence of actions aimed at planning and controlling cognitive processes, as well as correlating their results with the purpose of the activity [31].

Among the existing metacognitive strategies, it is advisable to highlight the following: 1) planning of cognitive activity, which involves setting goals for one's own activity, thinking about the means of achieving them and the

sequence of one's own learning actions; 2) forecasting, which involves taking into account the consequences of decisions made, anticipating possible changes in the problem situation; 3) conscious regulation of one's own cognitive behavior, which involves an objective assessment of one's own knowledge/ignorance and the quality of individual actions; 4) analysis of the course of thoughts, reasoning cognitive actions; setting oneself up for work; 5) defending or revising one's opinion as a result of realizing mistakes [cited in 3].

O. Savchenko identified the following metacognitive strategies for regulating cognitive activity: 1) "counterfactual upward", when the subject sees his or her condition as worse than possible; this strategy worsens the emotional state, but has a positive effect on further activities that could contribute to more rational behavior; 2) "checking assumptions"; 3) "enhanced arbitrary control over the problem-solving process"; 4) "soft change of position in the process of problem-solving"; 5) "focus on one's own emotions in the process of problem-solving" [37; 38].

*Systemic thinking.* The problem of studying systemic thinking is presented in the works of J. O'Connor [11], D. Meadows [50], P. Senge [47], D. Sherwood [48]. In these and other studies, systemic thinking is defined as the ability to see the deep connections between individual and apparently independent situations [11]. Systemic thinking involves the use of the category "system" as a way to consider an object, situation, or process [33] both as a system and as a supersystem or subsystem. Systemic thinking as an effective way to solve problems makes it possible to: 1) manage one's own life and realize the regularity of events; 2) develop effective thinking strategies and get rid of stereotypes; 3) move away from the blame game.

Systemic thinking is defined as the unity of different types of thinking, in particular logical and imaginative thinking, or as a trinity of subject-action, visual-figurative, and verbal-logical, where the latter is the leading one [cited in 6].

J. O'Connor, I. McDermott [11] provide recommendations on ways and strategies for understanding the situation that contribute to the development of systemic thinking and, accordingly, successful problem solving: 1) to establish connections, since systemic thinking connects us with our feelings, it is through them that feedback is provided; 2) to be aware of the state when the results do not correspond to the efforts, since persistent movement towards the goal creates a feedback equilibrium that arises as a

result of the minimum difference between the actual situation and the desired one, it is necessary to clearly define the goals and ideas about what exactly does not satisfy; 3) finding out what prevents the problem from being solved, why a certain problem persists, what actions contribute to it; 4) implementing a feedback mechanism: what results have been achieved, what has been learned from this experience [30].

Systemic thinking is based on the process of combining logical (left-hemispheric) and imaginative (right-hemispheric) thinking [cited in 6]. The educational paradigm of systemic thinking enables the harmonious development of a holistic personality. It is the basis for the formation of synthetic (comprehensive, holistic, and at the same time deep, single) thinking, which has a positive effect on increasing the level of readiness of a professional, a carrier of social experience and morality.

*Curiosity* is defined in the present study as a soft skill of a specialist, which is the ability to perceive and process information from the outside world, thereby stimulating research activities [2].

V. Krutetsky defines curiosity as an active cognitive attitude of a person to reality, and, unlike interests, it is more general in nature. It is not always associated with a particular subject, industry, or type of activity. In general, the concept of curiosity has not received an unambiguous and generally accepted interpretation, and an attempt to identify it with an emotionally colored attitude to the world around us (interest), cognitive needs or personality traits, motives, or intellectual feelings does not allow us to fully define the peculiar psychological content of this concept.

Today, there is a lack of special experimental studies on curiosity however, in the studies of O. Krupnova, S. Kudinova, N. Lobova, and O. Matiushkin, the nature of the phenomenon of curiosity was clarified, objective and subjective determinants of its manifestation and functioning were determined.

M. Alekseeva, G. Kostiuk, S. Maksymenko, G. Shchukina defined curiosity as a behavior and motive of a student's educational and cognitive activity, which acts as a factor in the educational and cognitive process and requires constant activation [12; 13], but according to this approach to the study of curiosity, there are limited opportunities to analyze its role in the educational and professional activities of their subjects.

Curiosity is a complex quality of a personality that implies dynamism, motivation, cognitive basis, emotional coloration, and productive and regulatory

nature of its functioning, which ensures the readiness of a person to search for and assimilate new information.

Generalization of a number of studies of curiosity allows us to note that its development is associated with the need to receive and evaluate new information about the world, and its prerequisite is the presence of personal meaning, sometimes not sufficiently realized, that is seen in the information received. Manifesting itself in the desire for self-cognition, for assimilation and transformation of information, curiosity is an important psychological condition for successful activity, and therefore we consider it a soft skill of a specialist.

The curiosity about the subject of learning activity develops in the learning process through such stimuli as the novelty of information (updating acquired knowledge, communicating a new opinion, emotional and imaginative coverage of the material by the subject of the educational process), the practical need for knowledge, the problematic nature of the educational material, encouraging independent learning activities, promoting creativity through the opening of opportunities for hypothesis building, the use of imagination, individual research and heuristic search.

H. Vichalkovska defines curiosity as "a systemic quality of a personality that includes various connections and relationships between dynamic, motivational, cognitive, emotional, regulatory and productive components that ensure the level of readiness of the subject to learn new information" [3, p. 42].

*Critical thinking.* The difficulty in understanding the concept of critical thinking is that there are a large number of approaches to interpreting this phenomenon. This does not mean that there are significant differences in the vision of this phenomenon, but it does indicate the breadth and complexity of the problem under study.

In general, views on the understanding of critical thinking are presented from three perspectives: 1) as a property of thought processes; 2) as cognitive techniques and strategies; 3) as a personality quality [24]. Considering criticality as a quality of thinking, skills, and abilities are traditionally distinguished, with an emphasis on the evaluative and self-regulatory functions in the structure of critical thinking. Criticality as a personality trait "...can manifest itself as an actual mental state, a volitional quality of a person, and a character trait" [cited in 24].

All of these approaches emphasize the main property of such thinking – criticality. In some cases, criticality is the result of a person's generalized

experience (successes and especially failures) in others, it is the result of mastering certain skills (evaluating, controlling, proving, making suggestions), and in still others it is a condition for independent creative activity, the ability to cognitively search for a solution to a problem [cited in 24]. Thus, the definition of criticality as a property is also a separate scientific problem. S. Maksymenko understands criticality as an individual feature of thinking, which "...manifests itself in the ability of a person not to be influenced by other people's opinions, to objectively assess the positive and negative aspects of a phenomenon or fact, to identify the valuable and false in them. A person with a critical mind evaluates his or her thoughts, carefully checks decisions, weighs all the arguments for and against, thus showing a self-critical attitude to his or her actions" [13, p. 292].

Scientists define criticality as the productivity of thinking, which is manifested in the evaluation of facts, opinions, and hypotheses, and as the ability to find errors and shortcomings in objects of knowledge and to establish the causes of their occurrence. Critical thinking is essentially a desire to verify "both the ordinary and the unusual, both the general and the particular in the world around us". Through critical thinking, an individual chooses the optimal and shortest way to solve a problem, a rational way of acting [1, p. 11].

D. Halpern understands the concept of critical (directed) thinking as the opposite of automatic, uncontrolled thinking [cited in 36]. Critical thinking involves the use of cognitive techniques and strategies that contribute to the desired end result and is used to solve problems, draw conclusions, make probabilistic assessments and make decisions. Critical thinking is directed because it is aimed at obtaining the desired result [9].

A. Lipkina defines critical thinking as sensitivity to errors, the need to be confident in the reliability and validity of phenomena, facts, and knowledge; it is "characterized by the ability to strictly evaluate the work of thought (one's own and others'), to subject the assumptions put forward to a comprehensive examination, carefully weighing all arguments". Critical thinking plays a significant role in the individual's socialization process. It is important in solving the problem of successful adaptation in professional activities and self-realization of the individual [cited in 32].

D. Kluster characterized the "uncritical" thinking types, allowing the author to conceptualize the features of critical thinking itself. Thus, understanding complex ideas, when a student tries to understand complex

material (a theorem, etc.), is an example of uncritical thinking, since the process of understanding implies that the subject of learning activity perceives what others have created through thinking. In contrast, critical thinking occurs when new, already-understood ideas are tested, developed, and applied. Memorizing facts and understanding ideas are prerequisites for developing critical thinking [cited in 24]. In addition, according to the author, uncritical thinking is creative thinking the elements of which may not be realized. That is why the scientist provides the following justification for critical thinking: 1) it is independent thinking; 2) it does not have to be original; 3) information is the starting point, not the endpoint, of critical thinking; 4) it begins with asking questions and identifying problems to be solved; 5) it strives for convincing argumentation [cited in 24].

The term "critical thinking" appeared in the 1970s in the works of foreign and later domestic researchers who emphasized the differences between criticality as a quality of the mind and critical thinking as a process of intellectual activity (thinking).

O. Tyaglo understands critical thinking as a component of modern logic – "the science of reasoning". The author proves the relationship between logic and critical thinking through the concept of correct thinking as such, which results in the adoption of logically sound decisions and the definition of logical errors [26]. R. Ennis and S. Norris understand critical thinking as a certain amount of skills and abilities of rational thinking and the ability to follow the laws of formal logic and identify violations of these laws [41]. Critical thinking is thinking, the core of which is logic [cited in 25, p. 44], "logic is the main element of critical thinking" [cited in 25, p. 63]. L. Tkachenko believes that critical thinking is related to logical thinking but notes that logic does not take into account the fact that thinking is influenced by motives, beliefs, emotions, etc., so, according to the author, critical thinking as an integrative quality of a person is a broader concept than logical thinking [25].

Classics of psychology have attempted to conceptualize and operationalize critical thinking. In the last century, A. Binet developed tests to identify criticality in children, based on the approach to critical thinking as based on logic; J. Piaget and W. Stern considered the problems of the genesis of critical thinking; J. Dewey proposed the concept of critical rationalism, where logic is the main means of critical thinking [cited in 24, p. 40–41]. P. Kapterev emphasized the importance of creating such thinking,

which is characterized by observation, integrity of judgment, independence, critical attitude to one's own and other people's thoughts, which will allow an individual to produce "subjectively new knowledge" [2, p. 23]. P. Blonsky used the concept of critical thinking, highlighting its main features: the ability to reasonably reject evidence that has certain shortcomings and inconsistencies and the ability to control the correctness of one's own and others' judgments [cited in 32]. According to B. Teplov, an indicator of the critical mind is the ability to look at one's assumptions as hypotheses that need to be tested, to reject those that do not stand up to this test, to abandon the actions taken when it turns out that they do not meet the conditions and requirements of the task [cited in 32].

Scientists define critical thinking as the ability of a person to a) realize the discrepancy between the statement (opinion) or behavior of another person and the generally accepted opinion or norms of behavior or own idea about them; b) see the truth or falsity of a theory, position, illogicality of a statement and respond to them; c) be able to separate the false, incorrect from the correct, true; d) analyze, prove or refute, evaluate a subject, task, show a sample of a statement, behavior, etc. [14].

V. Popkov and A. Korzhuyev understand critical thinking as the ability to defend a point of view and abandon the one that has not withstood argumentation, as a focus on non-acceptance of faith and comprehensive analysis of information [cited in 24].

L. Tkachenko defines critical thinking as a personality trait and describes it as independent, responsible, and unbiased thinking. The carrier of critical thinking is characterized by curiosity and flexibility, the presence of a certain level of doubt, the ability to find out the causes and predict the consequences, to find alternative solutions through an objective assessment of assumptions; it is a means of manipulative influences and it promotes self-improvement of the individual through personal reflection [25].

According to T. Khachumyan, the defining features of critical thinking are: the development of strategies for making the right decisions in solving any problems based on obtaining, analyzing, and processing information; implementation of reflective actions (analytical, verification, control, evaluation) performed in relation to any object or phenomenon, including one's own thinking process; balanced analysis of different opinions and views, expression of one's own position, objective assessment of the process and results of both one's own and others' activities [29, p. 6].

Critical thinking combines the skills of being curious and using research methods, asking questions and systematically searching for answers, the ability not to be satisfied with facts but to look for their causes and predict consequences; to show a certain level of skepticism and distrust of generally accepted things; the ability to develop one's own point of view and the ability to defend it with logical arguments [cited in 24].

H. Tulasynova understands critical thinking as a complex integrative quality of a personality represented by the ability to interpret, analyze, evaluate, explain, self-regulate, and skills of problem thinking and critical analysis, which is a professionally and personally significant value [cited in 24, p. 8].

I. Morochenkova also sees critical thinking as a personality quality that manifests itself in the ability of an individual to adequately understand the opinion of another, to highlight the main point, to realize and compare many points of view, to be able to argue [cited in 24, p. 12]. Critical thinking ensures the processes of self-knowledge, self-education, and self-realization of the individual, which indicates its reflexivity [cited in 24].

Critical thinking is a special type of thinking because it aims to evaluate ideas and is associated with checking the accuracy of statements and the validity of reasoning [cited in 32].

Critical thinking is also understood as a set of many skills – to reveal the causes and consequences of facts, doubt generally accepted truths and one's own point of view, defend it with logical evidence, and logically comprehend an opponent's arguments [22].

V. Brushinkin believes that critical thinking is a sequence of mental actions aimed at checking statements to determine if they are inconsistent with accepted facts, norms or values [cited in 24].

P. Paul proposes a metacognitive approach to understanding critical thinking and recognizes reflexivity as its main characteristic, pointing out that "critical thinking is thinking about thinking" when a person thinks about how to improve his or her thinking in order to enhance his or her own activities. According to the author, critical thinking leads to self-improvement and is autonomous, i.e., it is carried out independently, provides freedom from unconscious acceptance of other people's beliefs, and thus prevents manipulation [17].

D. Halpern also points to the reflexivity of critical thinking, which includes an assessment of the thinking process itself – the course of

reasoning that led to our conclusions or the factors that we took into account when making decisions. The author suggests cognitive techniques or strategies that increase the likelihood of obtaining the desired end result, which makes critical thinking controlled, reasonable and purposeful [28, p. 21–22].

Some authors associate critical thinking with creative thinking. For example, V. Kushnir emphasizes that the processes of analysis, synthesis, construction, hypothesizing and choosing, decision-making characterize both types of thinking [12, p. 58–60]. L. Khokhlova considers critical thinking as a qualitative characteristic of thinking in general, "necessary for the formation and development of a free, creative personality" [cited in 24, p. 11]. According to the scientist N. Yulina, critical, creative thinking exists in human relations, where it is impossible to resolve ethical, national, family, and interpersonal conflicts by means of rationality [cited in 36].

I. Zagashev and S. Zair-Beck emphasize that critical thinking is evaluative, reflective, and open, does not recognize dogmas, and develops through the layering of new information on personal life experience, emphasizing the difference between critical thinking and creative thinking, whereas the latter does not involve evaluation, and is capable of producing new ideas that often go beyond life experience, external norms and rules. Nevertheless, according to the authors, researchers recognize critical thinking as a starting point for creative thinking and believe that both types of thinking develop in synthesis, interdependently [cited in 24]. According to G. Lindsay, C. S. Hull, and R. F. Thompson, creative and critical thinking should be used in parallel otherwise they can become obstacle to each other. Creative thinking is aimed at creating new ideas, while critical thinking reveals its shortcomings and defects [cited in 36].

O. Tikhomirov noted that criticality is appropriate at the stage of rational thinking and can interfere with the process of imagination, when putting forward new ideas and setting new goals, that is, in the process of creative activity [cited in 24, p. 198]. Similarly, J. Chaffee noted that critical thinking is an obstacle to creative thinking and vice versa, since the latter involves a free flow of thoughts, while critical thinking is always aimed at evaluating and selecting the best and most effective ideas [39]. K. Tenk points out the evaluative nature of critical thinking compared to creative thinking, although both types are considered productive [53].

According to S. Terno, critical thinking contains acts of creativity, as it incorporates other types of thinking, including analytical, synthetic, theoretical, practical [23, p. 301].

L. Kyinko-Romanyuk understands critical thinking as moral and such that "...exists alongside logical, analytical, creative and other types and differs from them in that it forms not only the ability to consciously analyze, synthesize, draw one's own conclusions, see the problem from different angles, etc. but also the position, spiritual fullness of the individual"; it is characterized by a civic position based on the universal values of democracy and tolerance [10, p. 145].

O. Belkina-Kovalchuk understands critical thinking as something that prevents conformism and is the ability of an individual "...to independently assess the phenomena of the surrounding reality, information, scientific knowledge, opinions and statements of other people, the ability to see their positive and negative sides, as well as the desire for better, more optimal solutions to problems, tasks, to revise existing dogmas, stereotypes, traditions" [32, p. 25].

According to L. Tkachenko, critical thinking allows individuals not to succumb to belief in authorities or generally accepted truths; it contributes to protection against manipulation by the media, political forces, individual actors, and the state as a whole. It enables individuals to analyze and independently evaluate facts, events, and phenomena, and based on the conclusions drawn, to shape their own worldview. The author believes that the result of critical thinking is the product of analytical and evaluative activity aimed at discovering the truth, which occurs with the involvement of a moral component [25].

The definition of critical thinking is provided by L. Pometun:

- "a method of analyzing facts, generating and organizing ideas, defending opinions, making comparisons, drawing conclusions, evaluating arguments, and solving problems" [40, p. 3];
- "a method of reasoning that requires appropriate justification of one's beliefs and the willingness to abandon them if no justification is found" [52, p. 64];
- reasonable, reflective thinking focused on making decisions about what to believe or what to do [51];
- "analytical thinking aimed at evaluating (interpreting) what has been read" [43, p. 175];

- a purposeful, self-regulated system of judgments used for the interpretation, analysis, evaluation, and formulation of conclusions, aimed at forming evidence-based, conceptual, methodological, criteriological, or contextual thoughts on which this very system of judgments is based; a tool for inquiry [42];
- an intellectually disciplined process involving active and skillful conceptualization, application, analysis, synthesis, and/or evaluation of information gathered or generated through observation, experience, reflection, reasoning, or communication, which guides beliefs and actions [49];
- reasonable reflective thinking aimed at deciding what to believe or how to act, characterized by objective and logical judgment that considers both one's own beliefs and the opinions of others, as well as the ability to abandon personal biases [35];
- "skillful and responsible thinking that promotes sound judgment because it: 1) relies on criteria; 2) is self-correcting; 3) takes context into account" [44, p. 146];
- "the use of cognitive skills and strategies that contribute to achieving a desired outcome; deliberate, logical, and goal-oriented thinking" [28, p. 15].

We fully agree with a number of critical thinking functions highlighted by L. Tkachenko and consider it appropriate to take them into account in the process of its operationalization, namely:

1) the analytical function, implemented through a sequence of mental actions and the division of an object into specific elements to understand its essence;

2) the evaluative function, which involves the ability to compare, contrast, and make appropriate judgments regarding specific things;

3) the regulatory function, which ensures control over the process of critical reasoning;

4) the stimulative function, which drives the search for new knowledge (forming a need for hypotheses, ideas, judgments, and decisions);

5) the corrective function, aimed at refining information through critical analysis and associated with specifying the area of intellectual inquiry;

6) the prognostic function, which manifests itself in predicting the future final decision and begins at the initial stage of the thought process;

7) the protective (anti-manipulative) function, implemented in the context of an information society, ensuring a critical attitude of the individual

toward informational influences, conscious selection of information, and resistance to manipulation by the media, the state, or individual actors;

8) the reflective function, which ensures an individual's self-assessment of their mental processes, statements, actions, activities, and attitudes;

9) the socialization function, which facilitates the adaptation of a future specialist to the conditions of modern society;

10) the moral-regulatory function, which enables critical thinking while adhering to universal human moral values [25].

The main characteristics of critical thinking are defined as activity, a reflective nature, logicality (adherence to criteria, skillfulness, discipline, balance), independence (self-regulation, self-monitoring, and self-correction), goal orientation toward solving life or educational problems, discursiveness, productivity, and theoretical grounding. The development of critical thinking requires the ability to "think about one's thinking", reflect on it (a capability also referred to as "metacognition"), and consciously strive to improve it based on a model of "good" thinking. The primary cognitive operations (procedures, skills, strategies) of a critical thinker include the abilities to: identify problems, analyze facts, compare, draw conclusions, generate and organize ideas, evaluate, formulate interpretations and reasoned judgments, defend opinions, solve problems, and make decisions [35].

In the presented study, critical thinking is understood as a distinct type of rational, autonomous, independent, and reflective thinking that enables individuals to analyze, critically evaluate, and openly express their opinions; to develop their own viewpoints and defend them with logical arguments; to remain free from manipulation; to skillfully reject evidence that contains inconsistencies or contradictions; to monitor the correctness of their own and others' judgments; to verify, confirm, or reject hypotheses; to recognize the discrepancy between a statement (or opinion) or behavior of another person and generally accepted views, norms of behavior, or their own understanding of them; to detect the truth or falsity of a theory, statement, or illogical expression; to evaluate an object or task and demonstrate a model line of thought or behavior; to seek reasons and predict the consequences of events and facts; to display curiosity and utilize research methods, ask questions, and systematically search for answers; to exhibit appropriate skepticism and mistrust of commonly accepted notions; to identify key ideas in an opponent's argument while understanding and comparing them with their own viewpoint;

to independently evaluate phenomena of the surrounding reality, information, scientific knowledge, opinions, and statements of others, recognizing their positive and negative aspects; to strive for better, more optimal solutions to problems and tasks, and to revise existing dogmas, stereotypes, and traditions; and to search for alternative solutions through objective evaluation of assumptions. It was demonstrated that critical thinking performs analytical, evaluative, regulatory, stimulative, corrective, prognostic, protective (anti-manipulative), reflective, social, and moral-regulatory functions, making this type of thinking a soft skill for modern professionals.

## 3.2. Organization and methodology of research on the formation of metacognitive soft skills of a modern specialist

At the first stage of the empirical research, psychodiagnostic tools were selected, and proprietary methodologies were developed to determine the extent of the development of metacognitive soft skills.

To study cognitive flexibility, the Anagrams test was used. Within 3 minutes, students were required to form words from given sets of letters without omitting or adding any letters. The words had to be nouns only. The task was to count the number of correctly formed words within the allotted time. A low level of cognitive flexibility corresponded to forming 11 – 20 words. 21 – 25 words indicated a medium level. A high level was determined by forming more than 26 words.

The thinking speed was studied using a worksheet with words missing letters. Upon a signal, students were given 3 minutes to fill in the missing letters. Each blank represented one missing letter. The words had to be common nouns in the singular form. The number of correctly completed words within 3 minutes was recorded.

The indicator of thinking speed was the number of completed words: less than 20 words is low thinking speed, 21 – 30 words is medium thinking speed, 31 words or more is high thinking speed and cognitive agility.

The study of the level of *abnotivity* was carried out using the author's questionnaire developed for students. The psychometric sample consisted of 354 students of all educational levels, evenly represented by gender and different fields of study. The psychometric indicators of the abnotivity research methodology are presented in Table 3.1.

Table 3.1

**Psychometric indicators of the questionnaire "Student's abnotivity"**

| Statement | Average | Standard deviation | Correlations with the total scale | Cronbach's alpha |
|---|---|---|---|---|
| 1. I like to discover new facts about my subject | 3.21 | 1.78 | 0.745 | 0.854 |
| 2. I follow new discoveries in the scientific field related to my future profession | 2.45 | 1.85 | 0.732 | 0.855 |
| 3. I am committed to personal and professional growth | 3.43 | 1.25 | 0.785 | 0.854 |
| 4. I am a curious person | 2.89 | 2.01 | 0.841 | 0.855 |
| 5. I am willing to share information that is interesting to students, even if it is not in class | 2.64 | 1.26 | 0.854 | 0.854 |
| 6. f I am interested in something, I try to study it thoroughly | 3.45 | 2.14 | 0.746 | 0.854 |
| 7. I like answering the teacher's questions | 3.11 | 2.13 | 0.589 | 0.854 |
| 8. I support discussion in class | 3.21 | 2.41 | 0.746 | 0.855 |
| 9. I have or would like to have tutoring experience | 3.23 | 1.79 | 0.785 | 0.855 |
| 10. I am able to explain complex issues in the discipline I am studying to other students | 2.67 | 1.85 | 0.741 | 0.854 |

Cronbach's standardized alpha statistic is 0.855. None of the items presented in the questionnaire worsens the one-time reliability of the questionnaire, so all the statements included in the original version of the questionnaire remained unchanged in its content. All statements are highly correlated with the total abnotivity scale.

Table 3.2 shows the descriptive statistics for the student's total abnotivity score.

Table 3.2

**Descriptive statistics of the student abnotivity questionnaire**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| Abnotivity | 13 | 50 | 30.79 | 11.50 |

It was determined that the norms of abnotivity range from 19 to 41.

E. Torrance's creativity test was used to diagnose non-verbal creativity. We used a shortened version of the pictorial (figurative) battery of E. Torrance's test "Finish the Drawing". The respondent is offered ten

images, each of which is characterized by a high level of uncertainty, and is asked to complete and title them so that they embody the author's completed idea. This test takes about 10 minutes to complete. After completing the test, according to the author's concept of creative thinking by E. Torrance, the coefficients of originality, uniqueness, flexibility, fluency, and elaboration are calculated using special formulas and an atlas of typical drawings, and the results of each subject are interpreted according to the sample obtained by compiling both partial scales (for indicators of originality, flexibility, fluency, and elaboration) and an integral percentage scale.

To test verbal creativity of students, the author used the S. Mednik verbal creativity test in the modification of T. Galkina, L. Khusnutdinova, which is based on the above principles and is a complete group version of the methodology, consisting of two series (20 triads each), the first of which is intended for warm-up, and the second is the main one and is subject to processing.

The study of the level of *strategic learning* was carried out using the author's questionnaire developed for students. The psychometric sample consisted of 354 students of all educational levels, evenly represented by gender and different fields of study. The psychometric indicators of the abnotivity research methodology are presented in Table 3.3.

Table 3.3

**Psychometric indicators of the questionnaire "Learning strategies"**

| Statement | Average | Standard deviation | Correlations with the total scale | Cronbach's alpha |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. When I read a preface or syllabus for a course, I try to write down the key points to help organize my thoughts | 2.32 | 1.72 | 0.841 | 0.653 |
| 2. When studying a topic, I try to explain the material to a classmate or friend to help them understand it better | 3.11 | 1.88 | 0.605 | 0.652 |
| 3. I usually study in a place where I can focus on the subject | 2.86 | 1.23 | 0.740 | 0.653 |
| 4. When I read literature in a particular discipline, I ask myself questions to better understand the material | 2.56 | 2.33 | 0.698 | 0.652 |
| 5. When I study material in a subject that I am not interested in or I am lazy, I quit earlier than planned* | 2.36 | 1.23 | -0.870 | 0.653 |
| 6. When preparing for classes, I try to repeat the material out loud many times | 2.56 | 2.14 | 0.744 | 0.652 |

Table 3.3 (continuation)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 7. Even when I have difficulties in my studies, I try to cope with them on my own without asking for help from others* | 2.11 | 2.10 | -0.841 | 0.652 |
| 8. In my learning activities, I look through my notes and additional information to understand the main idea of the course | 2.89 | 2.40 | 0.522 | 0.653 |
| 9. I use the time allocated for this course effectively | 2.74 | 1.71 | 0.622 | 0.653 |
| 10. I try to cooperate with my classmates to pass the course exam | 2.98 | 1.89 | 0.862 | 0.652 |
| 11. While studying the discipline, I read my notes and course textbooks several times | 2.97 | 1.79 | 0.742 | 0.652 |
| 12. I work hard to succeed in the subject, even if I don't like what we are doing | 2.58 | 1.85 | 0.900 | 0.652 |
| 13. I make simple diagrams, charts and tables to help me organise my learning | 2.93 | 1.29 | 0.847 | 0.652 |
| 14. During this course, I often spend time discussing the course with other students | 2.74 | 2.31 | 0.745 | 0.653 |
| 15. I use the learning material as a starting point to try to develop my own ideas on the subject | 2.65 | 1.27 | 0.700 | 0.652 |
| 16. I find it difficult to stick to my study schedule* | 2.83 | 1.74 | -0.840 | 0.653 |
| 17. In my studies, I strive to gather information from various sources, such as lectures, independent reading, and discussing academic topics with others | 2.57 | 2.13 | 0.685 | 0.652 |
| 18. I ask the teacher to clarify concepts if I do not understand them well | 2.33 | 2.44 | 0.747 | 0.652 |
| 19. I memorize key words associated with important concepts in the subject | 2.52 | 1.73 | 0.691 | 0.652 |
| 20. When working on an individual task is challenging, I either abandon it or focus only on its simpler parts* | 2.11 | 1.82 | -0.804 | 0,.653 |

Table 3.3 (the end)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 21. Whenever possible, I try to apply ideas from one subject to other courses | 2.81 | 1.72 | 0.744 | 0.652 |
| 22. When studying a subject, I review my notes and summarize important concepts | 2.88 | 1.82 | 0.841 | 0.652 |
| 23. While studying a new subject, I try to connect the material to what I already know | 2.58 | 1.23 | 0.726 | 0.652 |
| 24. I have a workspace dedicated specifically for studying | 2.36 | 2.09 | 0.657 | 0.653 |
| 25. When studying a subject, I write a brief summary (annotation) of the main ideas from textbooks and notes | 2.56 | 1.26 | 0.824 | 0.652 |
| 26. When I cannot understand the material, I seek help from another student in my group | 2.17 | 2.19 | 0.723 | 0.652 |
| 27. I try to understand the subject material by analyzing the connections between what is written in the textbook and the concepts from lecture notes | 2.87 | 2.12 | 0.911 | 0.652 |
| 28. I strive to stay on track with the weekly schedule and complete course assignments on time | 2.83 | 2.43 | 0.847 | 0.652 |
| 29. I create lists of key points to define the subject and memorize them | 2.53 | 1.74 | 0.745 | 0.652 |
| 30. I attend classes regularly | 2.32 | 1.45 | 0.704 | 0.653 |
| 31. Even when studying is boring and uninteresting, I manage to keep working until I finish | 2.55 | 1.77 | 0.844 | 0.652 |
| 32. I try to identify students I can turn to for help if needed | 2.14 | 1.87 | 0.777 | 0.652 |
| 33. I often find that I do not devote enough time to studying a subject because I have many other activities* | 2.88 | 1.23 | -0.799 | 0.652 |
| 34. I rarely find time to review my notes or textbooks before an exam* | 2.84 | 2.07 | -0.699 | 0.652 |

* Reverse statements.

The standardized Cronbach's alpha statistic is 0.654. None of the questionnaire items presented decrease the internal reliability of the instrument; therefore, all statements included in the initial version of the questionnaire remained unchanged. All items show a high correlation with the overall scale.

Table 3.4 presents the descriptive statistics for the overall indicator of student learning strategic ability.

Table 3.4

**Descriptive statistics for the questionnaire "Learning strategies"**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| Strategic ability in learning | 36 | 170 | 107.74 | 46.63 |

It has been determined that the norms for strategic learning fall within a score range of 61 to 153.

The study of metacognitive self-regulation levels was conducted using an author-developed questionnaire specifically designed for the student age group. The psychometric sample included 354 students from all educational levels, with a balanced representation by gender and across various fields of science**.**

The psychometric indicators of the methodology for assessing attentiveness are presented in Table 3.5.

Table 3.5

**Psychometric indicators of the questionnaire "Metacognitive self-regulation"**

| Statement | Average | Standard deviation | Correlations with the total scale | Cronbach's alpha |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. I sometimes miss important points in class because I am occupied with my thoughts* | 2.77 | 1.75 | -0.811 | 0.703 |
| 2. After studying a topic, I often find myself thinking about the questions that seemed most compelling to me | 3.01 | 1.87 | 0.688 | 0.701 |
| 3. When I find myself at an impasse after reading material on a subject, I start over and try to understand it | 2.83 | 1.75 | 0.844 | 0.702 |
| 4. If the material I have read is unclear to me, I change my reading strategy | 2.78 | 2.31 | 0.694 | 0.702 |
| 5. I always try to independently find evidence to support the theories and conclusions presented in the textbook or by the instructor in class | 2.95 | 2.26 | 0.874 | 0.701 |

Table 3.5 (the end)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 6. Before starting a new subject, I review the textbook to understand the course structure | 2.50 | 2.13 | 0.724 | 0.703 |
| 7. I ask myself questions to ensure that I understand the material I have studied | 2.92 | 2.12 | 0.871 | 0.702 |
| 8. I try to adjust my learning approach according to the course content and the instructor's teaching style | 3.12 | 2.42 | 0.527 | 0.702 |
| 9. I often realize that I have read the material for class but did not understand what it was about* | 2.53 | 1.78 | -0.672 | 0.703 |
| 10. While studying a topic (module), I try to consider all the questions and determine that I should learn the topic as a whole rather than just preparing for each individual class within the module | 3.41 | 1.88 | 0.767 | 0.702 |
| 11. I try to manipulate my own ideas related to the subject material | 2.84 | 1.88 | 0.752 | 0.702 |
| 12. Whenever I read or hear a statement or conclusion in class, I consider possible alternative reasoning | 2.77 | 2.23 | 0.961 | 0.703 |
| 13. While studying this course, I try to identify the concepts I do not fully understand | 2.73 | 2.21 | 0.842 | 0.702 |
| 14. While studying, I set goals for myself to guide my activities during each learning period | 2.59 | 1.22 | 0.742 | 0.702 |
| 15. If I get confused by my notes from a lecture, I make sure to clarify and understand them later | 2.99 | 2.13 | 0.754 | 0.703 |

* Reverse statements.

The standardized Cronbach's alpha statistic is 0.704. None of the presented questionnaire items reduce its internal reliability, so all statements from the initial version of the questionnaire remained unchanged. All statements show a high correlation with the total scale.

Table 3.6 presents descriptive statistics for the overall metacognitive self-regulation score of the student.

Table 3.6

**Descriptive statistics of the "Metacognitive self-regulation" questionnaire**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| Metacognitive self-regulation | 23 | 75 | 56.73 | 14.64 |

It has been determined that the norms of learning strategicness range from 42 to 70 points.

For the purpose of studying *systemic thinking*, the students were provided with an algorithm for analyzing a problem situation in their field of expertise (economic, political science, technical, sociological, psychological) based on a general algorithm:

1. Evaluation of formulation of questions:

1.1. Read the text. Formulate three questions that you would like to ask or consider important to ask regarding the topics discussed in the paragraph, or that you find significant.

1.2. Evaluation of decision-making: In your opinion, is the topic discussed in the text relevant? Explain your answer.

2. Can you, based on the information provided in the text, make a decision about the preferred ways to solve the problem, possible alternatives for the development of the situation, etc.? Explain your answer.

3. If you believe that you need additional information to make a decision on solving the problem, indicate this in your questions. To make an informed decision, formulate two questions that you would like to have answered before making a decision.

4. Formulate two criteria that you use (or will use) when making a decision about the most appropriate way to solve the problem.

5. Briefly explain the pros and cons of your chosen approach in terms of future consequences. Compare your approach with any other alternative solutions to this problem.

Questions that are appropriate to identify in problem analysis:

1. Problem. What is happening?
2. Consequences. What has happened (or will happen) over time?
3. Factors. What caused the problem to arise?
4. Solution. What measures should be implemented to resolve the problem or change the situation?

The procedure for providing a problem-solving approach could be carried out either through written textual responses or by using mind maps.

For each field of study, four problem situations were prepared, which the participants had to resolve annually as part of a longitudinal study. Below, examples of problem situations proposed to the participants for their evaluation and resolution are presented.

1. A psychologist was approached by the parents of a 17-year-old girl who follows the Goth culture. They are worried and outraged by their daughter's behaviour, but most of all, they are afraid for her. They are afraid of all the symbolism, of talking about death, afraid that their daughter's desire for death could result in real action. The daughter became interested in this topic after the death of her grandmother, to whom she was very close. Questions for the task: Describe the daughter's condition. What recommendations can a psychologist give in this case?

2. A woman, 42 years old, L. A woman who has been treated by a psychiatrist for 4 years sought help. Her complaints are as follows: nothing makes her happy in life, she cannot get out of bed in the morning because she has no strength. She has a husband and a son aged 16. She was happy in her marriage until her husband started having problems in his business, which led to a lack of money. L. could no longer live the way she liked. The situation worsened when she and her husband visited former business partners who had survived the crisis and improved their financial situation. Over the past few years, the quarrels with her husband have intensified. On two occasions, they ended with L. fainting when her husband tried to leave to stop the quarrel. Task: How can you explain the client's condition? Develop a strategy for psychological assistance.

3. A 45-year-old man was laid off due to redundancy. He feels frustrated, fearful of the future and doubts about his professional skills. He says he "doesn't know where to start". Task: Describe the possible psychological consequences for the client in this case. Suggest specific steps to support him psychologically and help him find new opportunities. Formulate recommendations for preventing the complication of mental problems during the job search.

4. A counsellor was approached by a young man, a conscript, after an accident during a shooting exercise when one of his fellow soldiers was wounded. During the conversation, it turned out that he had problems with experiencing fears even before joining the army. Now he is afraid to be at the training ground, although he does not refuse to shoot his weapon. The situation is getting worse every day. Questions for the task: Describe the reasons for the referral, the type of problem and the client's condition. Make an intervention plan, justify your proposals.

To evaluate systemic thinking, experts assessed the adequacy, theoretical validity, variability and elaboration of the solution proposed by the student.

Table 3.7 shows the descriptive statistics for the overall indicator of the student's systemic thinking.

Table 3.7

**Descriptive statistics of the test to determine the level of systemic thinking**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| Systemic thinking | 3 | 23 | 9.28 | 4.92 |

It has been determined that the norms of systemic thinking range from 5 to 14 points.

The level of curiosity was studied using the author's questionnaire developed for students. The psychometric sample consisted of 354 students of all educational levels, evenly represented by gender and different fields of study. The psychometric indicators of the abnotivity research methodology are presented in Table 3.8.

Table 3.8

**Psychometric indicators of the questionnaire items for measuring the level of curiosity**

| Statement | Average | Standard deviation | Correlations with the total scale | Cronbach's alpha |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| 1. I like to examine an object carefully and in detail to discover details that I have not seen before | 2.55 | 1.58 | 0.785 | 0.845 |
| 2. As a rule, I ask if I don't know something | 3.01 | 1.73 | 0.784 | 0.685 |
| 3. I enjoy engaging in something new | 2.89 | 1.82 | 0.785 | 0.745 |
| 4. I like to visit new places | 2.78 | 1.87 | 0.785 | 0.698 |
| 5. I often try to imagine what other people think | 2.93 | 1.80 | 0.785 | 0.874 |
| 6. There are many things I would like to experiment with | 2.58 | 1.81 | 0.785 | 0.744 |
| 7. It is interesting to take on puzzles and games in which you need to calculate your next steps | 2.96 | 1.83 | 0.785 | 0.841 |
| 8. I am interested in mechanisms, it is interesting to see what is inside them and how they work | 3.11 | 1.90 | 0.784 | 0.526 |
| 9. I like to flick through books and magazines just to see what's in them | 3.02 | 2.01 | 0.785 | 0.652 |
| 10. I like to ask questions about things that other people don't think about | 3.15 | 1.96 | 0.784 | 0.863 |

Table 3.8 (the end)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 11. Wherever I go, I always find something interesting | 2.97 | 1.91 | 0.785 | 0.742 |
| 12. I am never bored | 2.90 | 1.86 | 0.785 | 0.964 |
| 13. Many people say that I am inquisitive | 2.91 | 1.88 | 0.785 | 0.841 |
| 14. One day is not like the next | 2.93 | 1.74 | 0.785 | 0.745 |
| 15. I can find something interesting in any situation | 2.97 | 1.30 | 0.784 | 0.744 |

Table 3.9 shows the descriptive statistics for the overall measure of student curiosity.

Table 3.9

**Descriptive statistics of the questionnaire "Curiosity"**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| Questionnaire | 15 | 75 | 52.71 | 11.24 |

It has been determined that the norms of curiosity range from 41 to 63.

The study of the level of *metacognitive self-regulation* was carried out using the author's questionnaire developed for students. The psychometric sample consisted of 234 people of all ages and educational levels, evenly represented by gender and different fields of study. To assess the reliability and validity of the methodology, descriptive statistics, Cronbach's alpha statistics, and correlation analysis were used. To test the divergent and convergent validity, the J. Guilford Social Intelligence Test and the Starkey Critical Thinking Test were used.

Table 3.10 shows the results of the analysis of descriptive statistics for the 25 statements of the critical thinking questionnaire.

Table 3.10

**Psychometric parameters for the statements of the critical thinking questionnaire**

| No. | Statement | | | Average | Standard deviation | Cronbach's alpha | Pearson's r-score with a total scale |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 | I make decisions independently | 1234567 | I consult with others before making a decision | 4.55 | 4.34 | 0.876 | 0.751 |

Table 3.10 (continuation)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 2 | I find it difficult to use reason when making a decision because I am emotional* | 1234567 | I make decisions rationally | 3.23 | 2.56 | 0.875 | 0.852 |
| 3 | I express my opinion openly, even if it contradicts others | 1234567 | I try to avoid saying things that contradict the opinions of others | 4.27 | 3.89 | 0.875 | 0.683 |
| 4 | I take what I am told on faith* | 1234567 | I carefully check information received from the media I am often manipulated | 3.21 | 4.21 | 0.874 | 0.714 |
| 5 | I find it difficult to be manipulated* | 1234567 | I am difficult to manipulate | 2.87 | 4.53 | 0.870 | 0.743 |
| 6 | I analyze the situation before making a decision | 1234567 | I make decisions impulsively | 3.45 | 4.78 | 0.871 | 0.692 |
| 7 | I weigh up all the pros and cons when making a decision | 1234567 | It is difficult to assess all the advantages and disadvantages of a decision | 3.56 | 4.55 | 0.872 | 0.751 |
| 8 | I learn from my mistakes | 1234567 | I keep making the same | 3.47 | 4.01 | 0.875 | 0.59 |
| 9 | I can reasonably reject evidence that has certain flaws and inconsistencies | 1234567 | I don't have enough arguments to point out to my opponent that his beliefs are wrong | 3.78 | 4.03 | 0.874 | 0.823 |
| 10 | I am able to control the correctness of my own and other people's judgements | 1234567 | It is difficult for me to find mistakes when expressing my own thoughts or those of my opponents | 3.67 | 4.28 | 0.875 | 0.633 |
| 11 | I am able to look at my assumptions as hypotheses that need to be tested, and reject those that do not stand up to this test | 1234567 | It is difficult for me to abandon a planned or traditional algorithm for solving a problem | 3.42 | 4.34 | 0.874 | 0.724 |

Table 3.10 (continuation)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 12 | I abandon the actions I have started when it turns out that they do not meet the conditions and requirements of the task | 1234567 | It is difficult for me to abandon the usual way of solving a problem | 3.21 | 3.96 | 0.873 | 0.904 |
| 13 | I understand the inconsist-ency of another person's state-ment (opinion) or behaviour with generally accepted opinions or norms of behaviour or my own idea of them | 1234567 | I have difficulties in comparing my thoughts and statements with traditional and accepted ones in society | 3.87 | 4.58 | 0.874 | 0.624 |
| 14 | I easily notice the truth or falsity of a theory, position, or illogical statement | 1234567 | I find it difficult to assess the truth or falsity of theories and opinions | 4.45 | 4.55 | 0.873 | 0.634 |
| 15 | I know how to separate what is wrong from what is right | 1234567 | I have difficulty finding the truth | 3.67 | 4.51 | 0.875 | 0.663 |
| 16 | I like to analyze, prove or disprove opinions | 1234567 | I don't like to analyse thoughts and actions | 3.28 | 4.03 | 0.876 | 0.722 |
| 17 | I am inclined to evaluate a subject, task, show a model line of thought or behaviour | 1234567 | I am not inclined to make judgements, demonstrate exemplary thought or behaviour | 3.87 | 4.56 | 0.875 | 0.781 |
| 18 | I tend not to be satisfied with facts, but to look for their causes and predict their consequences | 1234567 | I am not inclined to make judgements, demonstrate exemplary thought or behaviour | 3.56 | 4.56 | 0.874 | 0.740 |
| 19 | I am inquisitive and able to use research methods, ask questions and search for answers in a systematic way | 1234567 | I am indifferent to things that do not directly affect me | 3.73 | 4.52 | 0.875 | 0.720 |

Table 3.10 (the end)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|
| 20 | I am sceptical and distrustful of things that are generally accepted | 1234567 | I believe that generally accepted models of behaviour and traditions are correct | 3.96 | 4.11 | 0.871 | 0.693 |
| 21 | I tend to develop my own point of view and ability to defend it with logical arguments | 1234567 | It is difficult for me to form my own point of view and defend it | 3.89 | 4.73 | 0.874 | 0.663 |
| 22 | I am able to identify the main points in my opponent's opinion, realising it and comparing it with my own point of view | 1234567 | I am easily confused by counter-arguments | 3.49 | 4.59 | 0.873 | 0.743 |
| 23 | I can independently assess the phenomena of the surrounding reality, information, scientific knowledge, opinions and statements of other people, and can see their positive and negative sides | 1234567 | In analysing reality, I find it difficult to independently assess the positive and negative aspects of phenomena and processes | 3.67 | 4.09 | 0.872 | 0.582 |
| 24 | I strive for a better, more optimal solution to problems and tasks, to revise existing dogmas, stereotypes and traditions | 1234567 | I am satisfied with the accepted ways of solving problems that I am used to | 3.98 | 4.07 | 0.875 | 0.532 |
| 25 | I always look for alternative solutions through an objective assessment of assumptions | 1234567 | When solving a problem, I use solutions that have proven to be effective in my past experience | 3.58 | 4.62 | 0.875 | 0.549 |

* Reverse statements.

The alpha coefficient for the 25 items was found to be 0.876, which is quite high. All 25 statements of the questionnaire were included in the final version, as the alpha should decrease when these items are removed.

To evaluate the normative values of the methodology, descriptive statistics were estimated on a summary scale (Table 3.11).

Table 3.11

**Descriptive statistics of the critical thinking questionnaire**

| Indicators | Min | Max | Mean | St. dev. |
|---|---|---|---|---|
| General indicator of critical thinking | 26 | 175 | 103.55 | 56.37 |

According to the descriptive statistics, the normative values of critical thinking were determined, ranging from 47 to 159 points (Table 3.12).

Table 3.12

**Correlation of critical thinking indicators**

| Indicators | Critical thinking (Starkey test) | Social intelligence subtest 1 | Social intelligence subtest 2 | Social intelligence subtest 3 | Social intelligence subtest 4 |
|---|---|---|---|---|---|
| Critical thinking (based on the author's questionnaire) | 0.78 | 0.52 | 0.55 | 0.62 | 0.69 |

Test-retest reliability was tested by correlation analysis and showed a high value ($p < 0.0001$). The convergent validity of the questionnaire was confirmed by positive relationships with social intelligence indicators for all subtests ($p < 0.0001$).

## 3.3. Comparative analysis of metacognitive soft skills of future specialists in different specialities

Table 3.13 shows the differences in the indicators of metacognitive self-regulation and inclusion of future specialists in different specialities.

Table 3.13

**Indicators of metacognitive skills of students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Metacognitive awareness | 40.25 ± 5.80 | 31.79 ± 7.60 | 34.75 ± 2.66 | 36.10 ± 3.57 | 39.06 ± 5.69 | 27.58 |
| Metacognitive self-regulation | 45.31 ± 17.48 | 42.89 ± 10.77 | 53.50 ± 12.93 | 60.40 ± 9.13 | 62.56 ± 7.62 | 20.96 |

The highest indicators of metacognitive awareness were found among future specialists studying in the speciality "Economics", while these skills are the lowest among future psychologists. Indicators of metacognitive self-regulation were the highest among future political scientists and representatives of technical specialists, while they were the lowest among economics students.

The speed of thinking was the highest among economics students, and no statistically significant differences were found in terms of flexibility of thinking (Table 3.14).

Table 3.14

**Indicators of speed and flexibility of thinking among students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Speed of thinking | 40.26 ± 5.80 | 31.79 ± 7.61 | 34.75 ± 2.67 | 36.10 ± 3.57 | 39.06 ± 5.69 | 10.90* |
| Flexibility of thinking | 29.77 ± 9.51 | 25.17 ± 5.87 | 26.83 ± 10.13 | 23.90 ± 3.35 | 23,62 ± 6.22 | 2.42 |

* Statistically significant difference between groups < 0.05.

The indicators of curiosity were higher among economics students and representatives of technical specialities, while they were the lowest among future psychologists (Table 3.15).

Table 3.15

**Indicators of curiosity of applicants of students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Curiosity | 56.61 ± 10.22 | 46.82 ± 13.87 | 51.41 ± 6.88 | 49.80 ± 4.75 | 56.88 ± 9.06 | 16.97** |

** Statistically significant difference between groups < 0.01.

Indicators of critical thinking do not actually differ among future specialists of different specialities, but future economists consider themselves to have more pronounced critical thinking, and political scientists rate their own critical thinking low (Table 3.16).

Table 3.16

**Indicators of critical thinking of students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Critical thinking (test) | 5.15 ± 3.25 | 4.21 ± 2.21 | 4.92 ± 2.47 | 3.10 ± 2.38 | 3.19 ± 2.48 | 7.89 |
| Critical thinking (questionnaire) | 113.31 ± 54.67 | 101.97 ± 40.52 | 107.67 ± 43.98 | 62,90 ± 25.27 | 88.19 ± 49.31 | 9.56* |

* Statistically significant difference between groups < 0.05.

The indicators of systemic thinking do not differ among future specialists of different specialities (Table 3.17).

Table 3.17

**Indicators of systemic thinking of students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Systemic thinking | 9.97 ± 4.56 | 8.37 ± 4.30 | 11.25 ± 6.78 | 6.80 ± 2.14 | 9.31 ± 5.96 | 5.78 |

Strategic learning is more inherent in future economists and specialists in technical specialities, while future psychologists are characterised by the lowest strategic learning in the sample (Table 3.18).

Table 3.18

**Indicators of strategic learning of students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Strategic thinking in learning | 128.20 ± 42.82 | 79.10 ± 45.81 | 90.50 ± 36.95 | 104.30 ± 35.32 | 124.87 ± 40.95 | 23.56 |

Indicators of abnormality do not differ among future specialists of different specialities (Table 3.19).

Table 3.19

**Indicators of abnotivity among students of different specialities**

| Indicators | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Abnotivity | 33.61 ± 12.49 | 31.65 ± 10.10 | 30.00 ± 10.91 | 24.00 ± 9.04 | 27.18 ± 11.69 | 8.27 |

There were no significant differences in the indicators of figurative creativity among future specialists of different specialities, except for the indicator of abstractness of the title, which among higher among future economists (Table 3.20).

Table 3.20

**Indicators of figurative creativity of students of different specialities**

| Indicators of figurative creativity | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Speed | 60.56 ± 26.20 | 63.76 ± 21.34 | 73.50 ± 4.50 | 53.40 ± 29.24 | 60.44 ± 23.79 | 4.31 |
| Originality | 55.33 ± 26.15 | 52.90 ± 19.69 | 56.83 ± 20.50 | 40.00 ± 20.56 | 48.56 ± 23.60 | 4.19 |
| The abstractness of the name | 65.62 ± 16.30 | 58.90 ± 13.68 | 62.42 ± 19.21 | 56.80 ± 5.31 | 57.31 ± 21.55 | 10.73* |
| Resistance to closure | 56.38 ± 25.59 | 51.93 ± 20.36 | 65.00 ± 10.37 | 50.90 ± 16.68 | 54.81 ± 18.28 | 5.78 |
| Elaboration | 56.90 ± 25.83 | 54.90 ± 21.32 | 60.00 ± 19.53 | 35.50 ± 23.83 | 52.94 ± 20.64 | 7.85 |

* Statistically significant difference between groups < 0.05.

The speed of verbal creativity is higher among future political scientists, while psychologists have the lowest rate (Table 3.21).

Table 3.21

**Indicators of verbal creativity of students of different specialities**

| Indicators of verbal creativity | Groups of subjects | | | | | H |
|---|---|---|---|---|---|---|
| | Economics | Psychology | Sociology | Political science | Technical specialities | |
| Speed | 71.64 ± 14.37 | 64.97 ± 19.67 | 77.17 ± 3.21 | 76.10 ± 2,.51 | 68.19 ± 17.47 | 10.90* |
| Flexibility | 63.59 ± 15.40 | 59.93 ± 19.82 | 70.08 ± 8.77 | 64.00 ± 16.20 | 59.38 ± 19.53 | 2.42 |
| Originality | 65.87 ± 16.20 | 67.07 ± 12.50 | 69.83± 10.13 | 56.20 ± 16.38 | 61.00 ± 15.76 | 7.37 |
| Elaboration | 62.87 ± 10.48 | 67.00 ± 9.30 | 65.17 ± 9.14 | 65.90 ± 8.08 | 58.88 ± 10.64 | 8.25 |

* Statistically significant difference between groups < 0.05.

Fig. 3.1 shows the specifics of metacognitive involvement depending on the level of academic performance and the student's specialty.

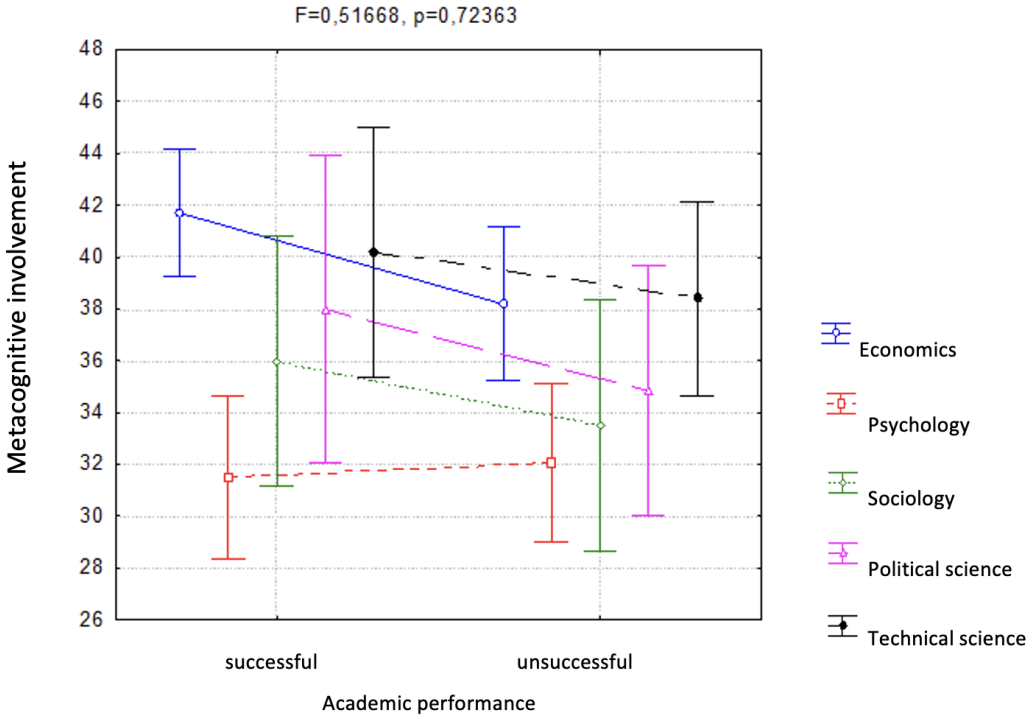


Fig. 3.1. **Indicators of metacognitive involvement of students of different specialities depending on the level of academic performance**

The indicators of metacognitive involvement are the highest among successful economics students, while future psychologists, regardless of their academic performance, have the lowest indicators of metacognitive inclusion.

Fig. 3.2 shows the specifics of metacognitive self-regulation depending on the level of academic performance and students' speciality.

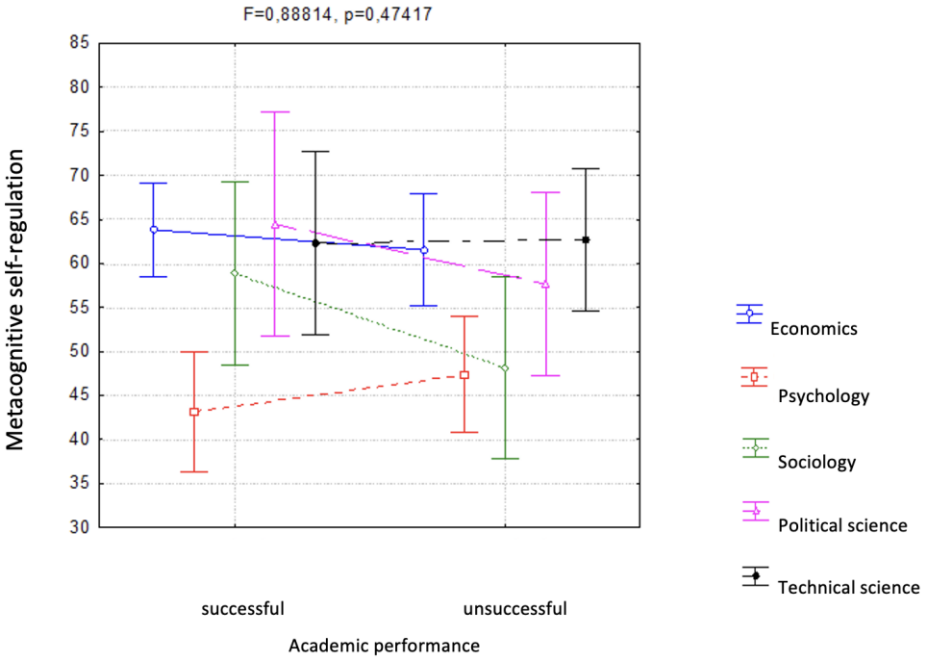


Fig. 3.2. **Indicators of metacognitive self-regulation of students of different specialities depending on the level of academic performance**

The level of academic performance positively affects the indicators of metacognitive self-regulation only among sociology students. Future psychologists' metacognitive self-regulation is the lowest, regardless of the level of academic performance.

Fig. 3.3 shows the specifics of strategic learning depending on the level of academic performance and students' speciality.

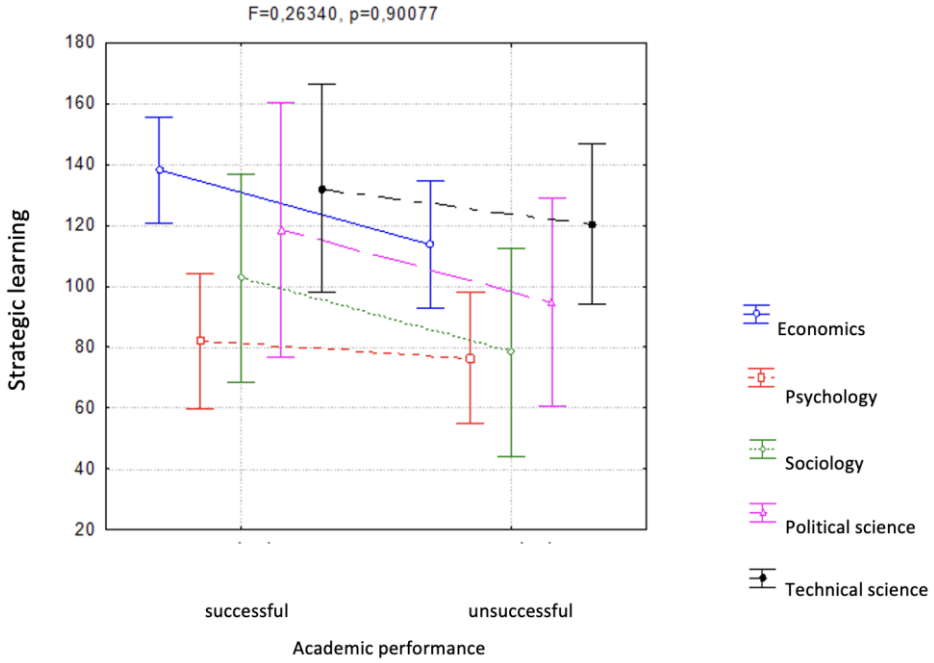


Fig. 3.3. **Indicators of strategic learning of students of different specialities depending on the level of academic performance**

Successful economics students have the highest indicators of strategic learning, while future psychologists, regardless of their academic performance, have the lowest indicators of strategic learning.

Fig. 3.4 shows the specifics of the speed of thinking depending on the level of academic performance and the students' speciality.

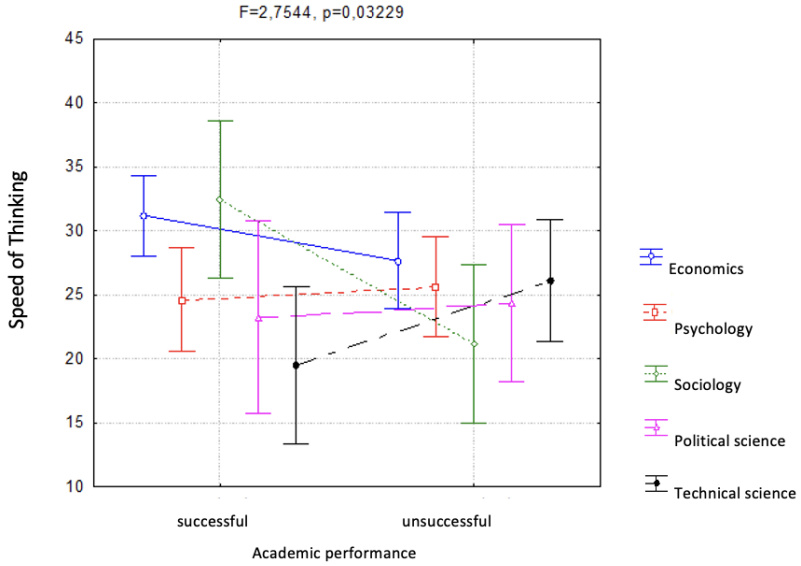


Fig. 3.4. **Indicators of the speed of thinking of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of thinking speed only for sociology students.

Fig. 3.5 shows the specifics of flexibility of thinking depending on the level of academic performance and speciality of students.

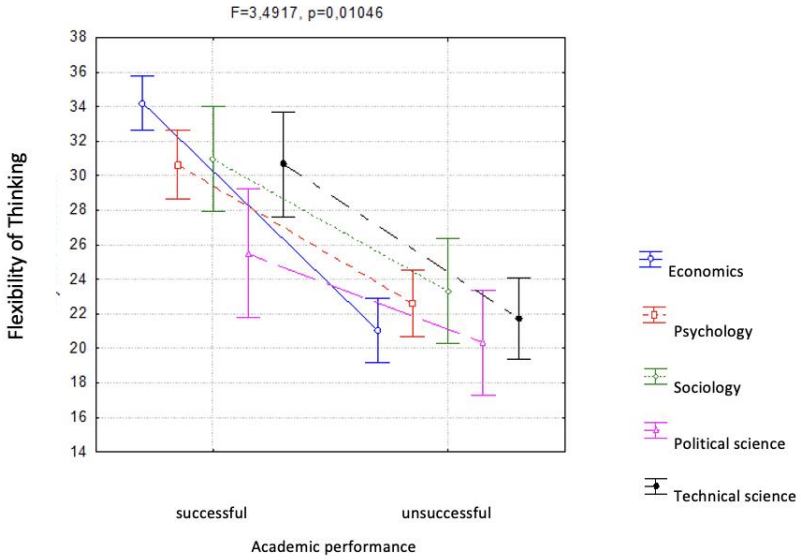


Fig. 3.5. **Indicators of flexibility of thinking of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the flexibility of thinking of students of all specialities, especially future economists.

Fig. 3.6 shows the specifics of systemic thinking depending on the level of academic performance and the students' speciality.

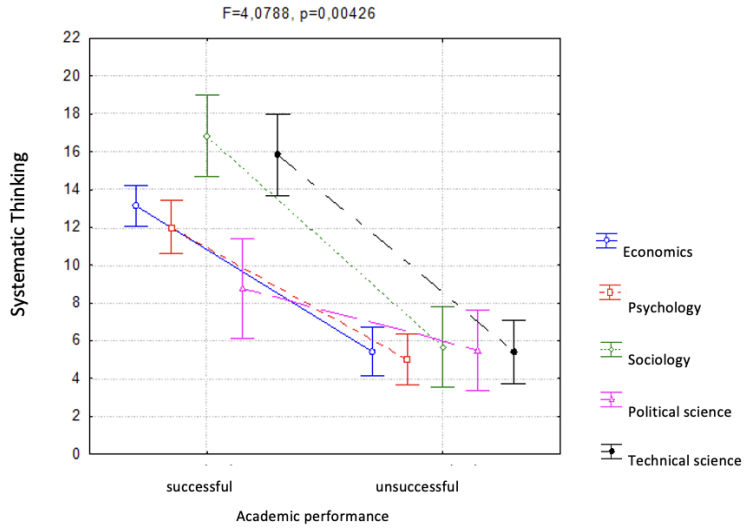


Fig. 3.6. **Indicators of systemic thinking of students of different specialities depending on the level of academic performance**

The level of academic success has a positive effect on the indicators of systemic thinking of students of all specialities, especially future sociologists and representatives of technical specialists.

Fig. 3.7 shows the specifics of curiosity depending on the level of academic performance and the students' speciality.

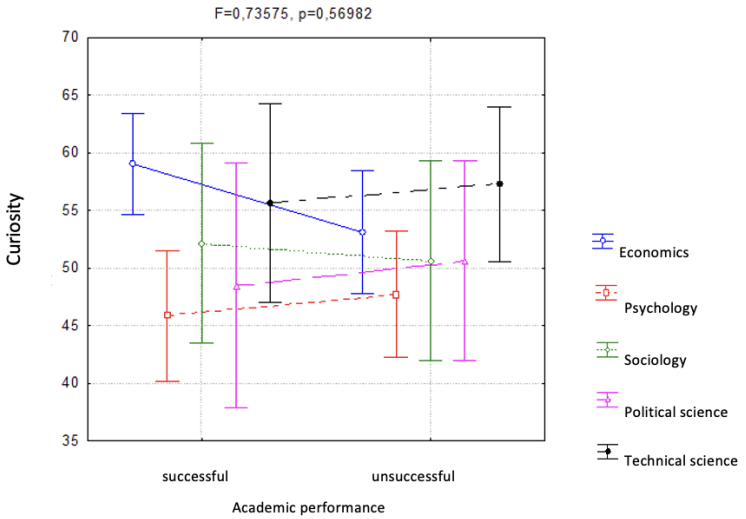


Fig. 3.7. **Indicators of curiosity among students of different specialities depending on the level of academic performance**

Successful economics students have the highest curiosity scores, while future psychologists, regardless of their academic performance, have the lowest curiosity scores.

Fig. 3.8 shows the specifics of actual critical thinking depending on the level of academic performance and students' speciality.

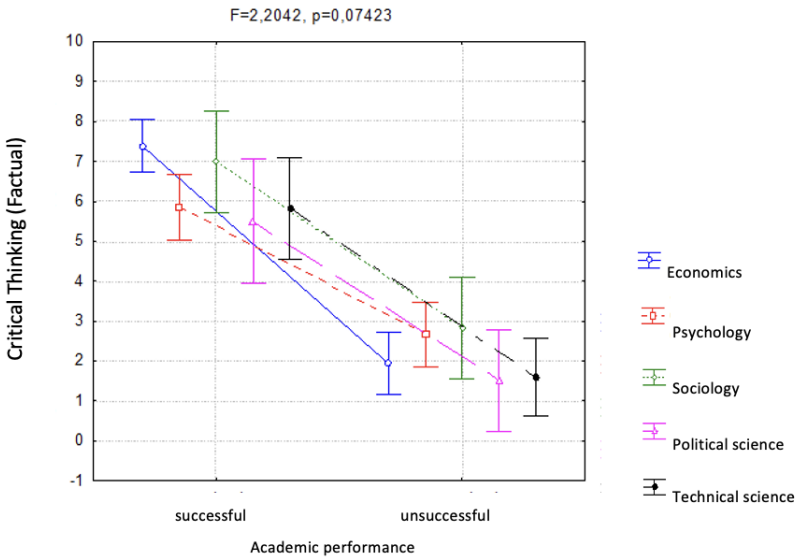


Fig. 3.8. **Indicators of critical thinking (factual) of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the critical thinking of students of all specialities.

Fig. 3.9 shows the specifics of conscious critical thinking depending on the level of academic performance and students' speciality.

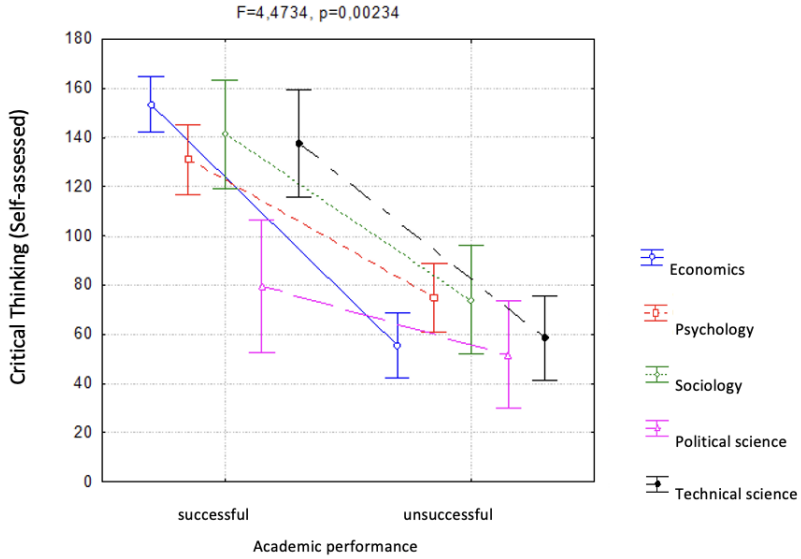


Fig. 3.9. **Indicators of critical thinking (self-assessed) among students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of critical thinking (self-assessment) of students of all specialities, especially future economists.

Fig. 3.10 shows the specifics of the speed of imaginative creativity depending on the level of academic performance and the students' speciality.

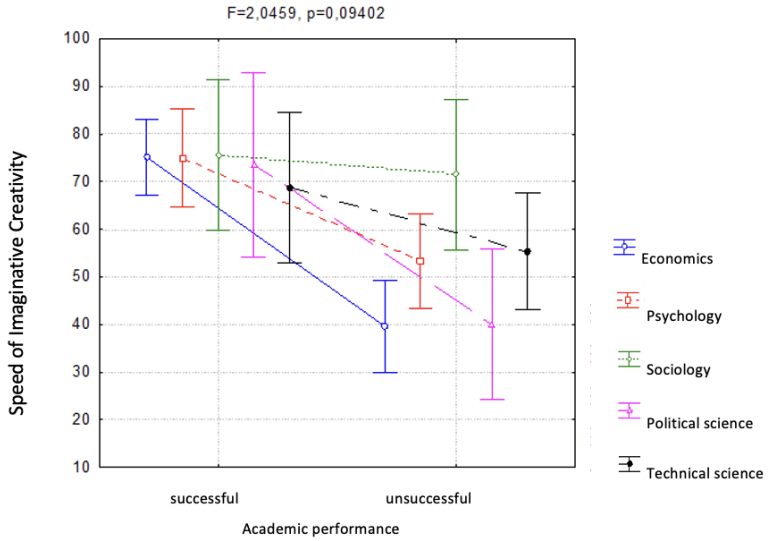


Fig. 3.10. **Indicators of the speed of imaginative creativity of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of imaginative creativity speed of students of all specialities, especially future economists and political scientists.

Fig. 3.11 shows the specifics of the originality of imaginative creativity depending on the level of academic performance and the students' speciality.

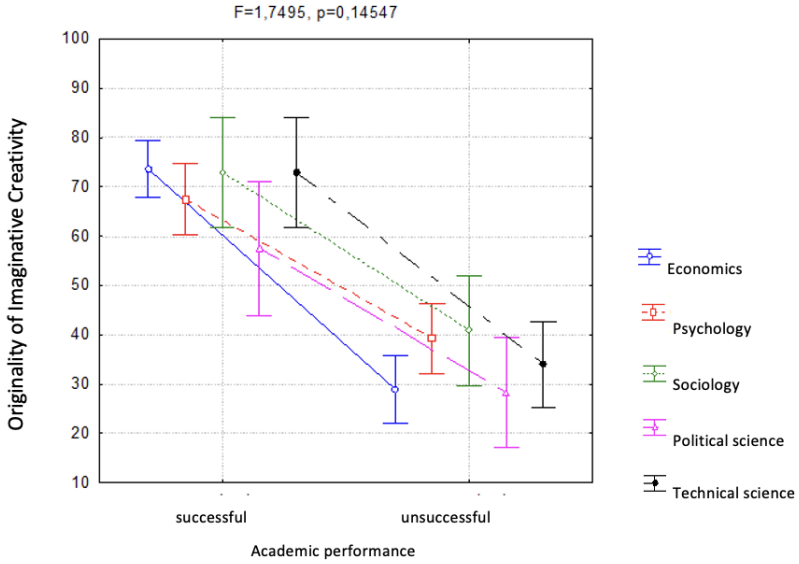


Fig. 3.11. **Indicators of originality of imaginative creativity of students of different specialities depending on the level of academic performance**

The level of academic success has a positive effect on the indicators of originality of imaginative creativity of students of all specialities.

Fig. 3.12 shows the specificity of the abstractness of the name of figurative creativity depending on the level of academic performance and the speciality of students.

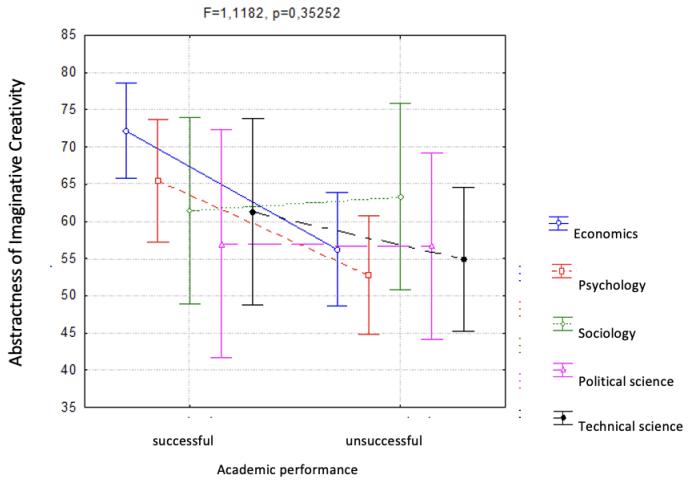


Fig. 3.12. **Indicators of the abstractness of the name of figurative creativity for students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of abstractness of the name of imaginative creativity of economics students.

Fig. 3.13 shows the specifics of resistance to the closure of imaginative creativity depending on the level of academic performance and students' speciality.

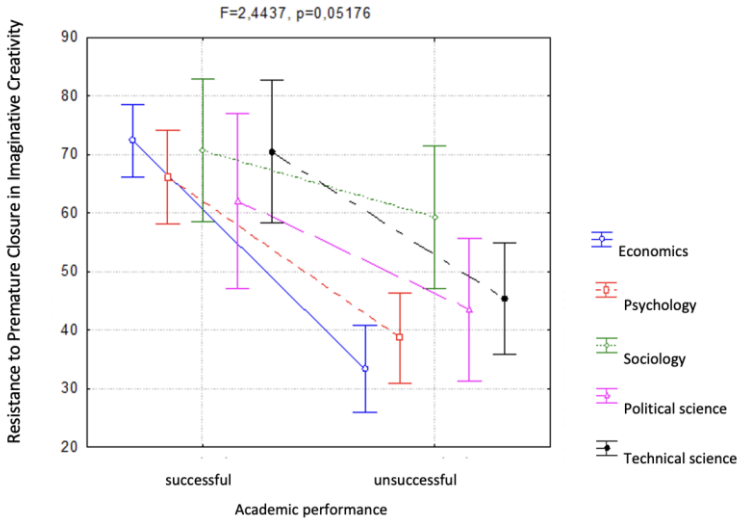


Fig. 3.13. **Indicators of resistance to imaginative creativity of students of different specialities, depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of resistance to the closure of imaginative creativity of students of all specialities.

Fig. 3.14 shows the specifics of imaginative creativity development depending on the level of academic performance and students' speciality.

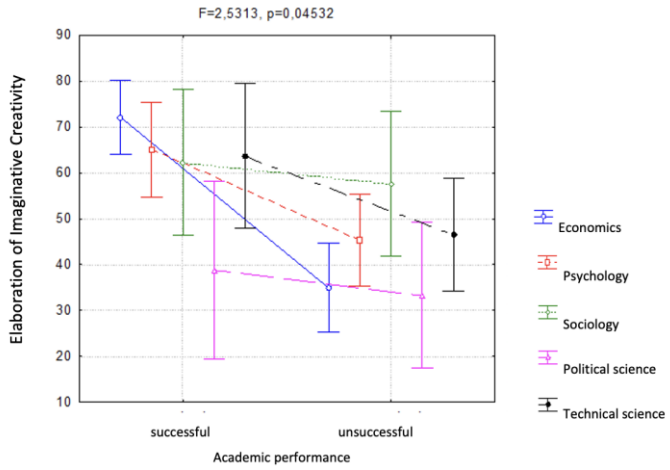


Fig. 3.14. **Indicators of the development of imaginative creativity of students of different specialities depending on the level of academic performance**

The level of academic success has a positive effect on the indicators of imaginative creativity of students of all specialities, except for future political scientists and sociologists.

Fig. 3.15 shows the specifics of verbal creativity speed depending on the level of academic students and students' speciality.

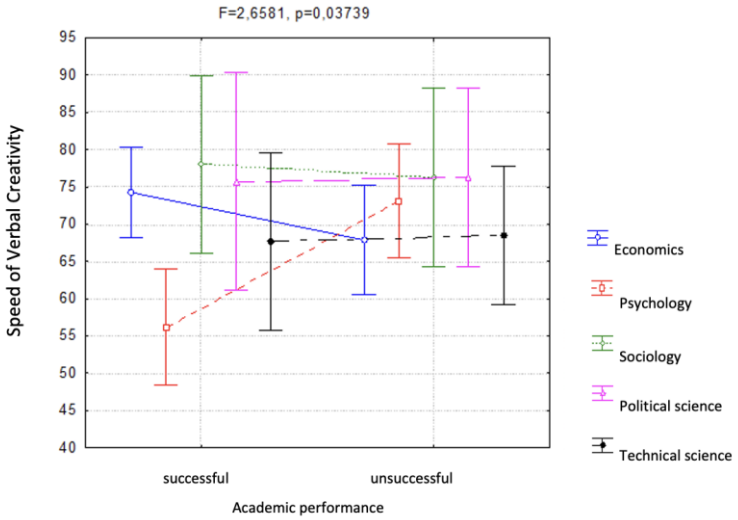


Fig. 3.15. **Indicators of verbal creativity speed of students of different specialities depending on the level of academic performance**

Among future psychologists, the speed of verbal creativity is higher with lower academic performance.

Fig. 3.16 shows the specifics of the flexibility of verbal creativity depending on the level of academic performance and the students' speciality.

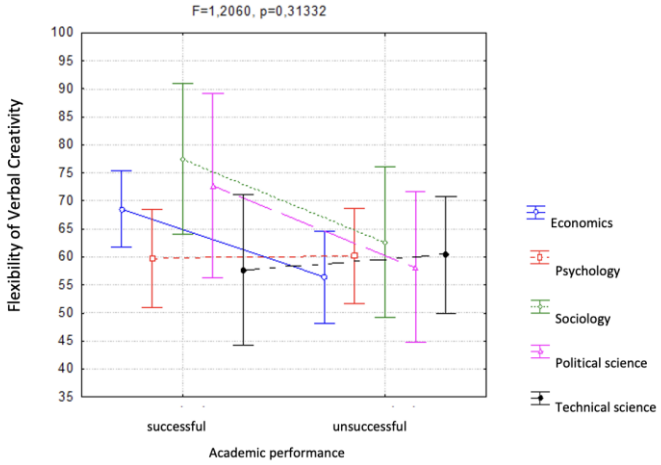


Fig. 3.16. **Indicators of verbal creativity flexibility among students of different specialities depending on the level of academic performance**

Future sociologists who are successful in their studies are characterised by the highest indicators of verbal creativity flexibility.

Fig. 3.17 shows the specifics of verbal creativity originality depending on the level of academic performance and students' speciality.

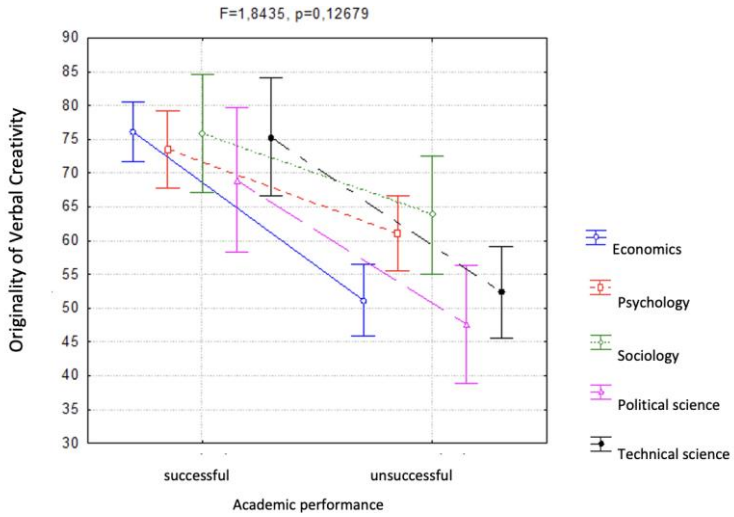


Fig. 3.17. **Indicators of verbal creativity originality of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of verbal creativity originality of students of all specialities.

Fig. 3.18 shows the specifics of verbal creativity development depending on the level of academic performance and students' speciality.

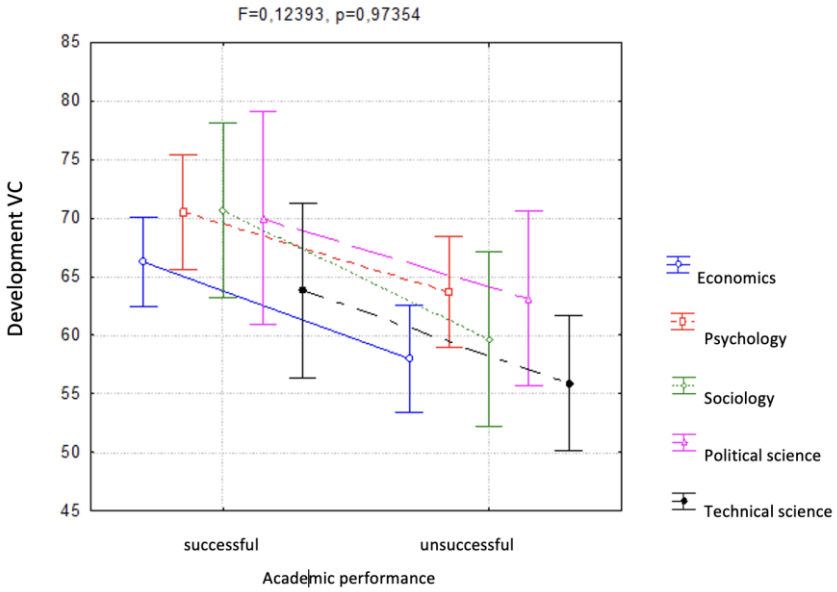


Fig. 3.18. **Indicators of verbal creativity development of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the indicators of verbal creativity development of students of all specialities.

Fig. 3.19 shows the specifics of abnotivity depending on the level of academic performance and students' speciality.

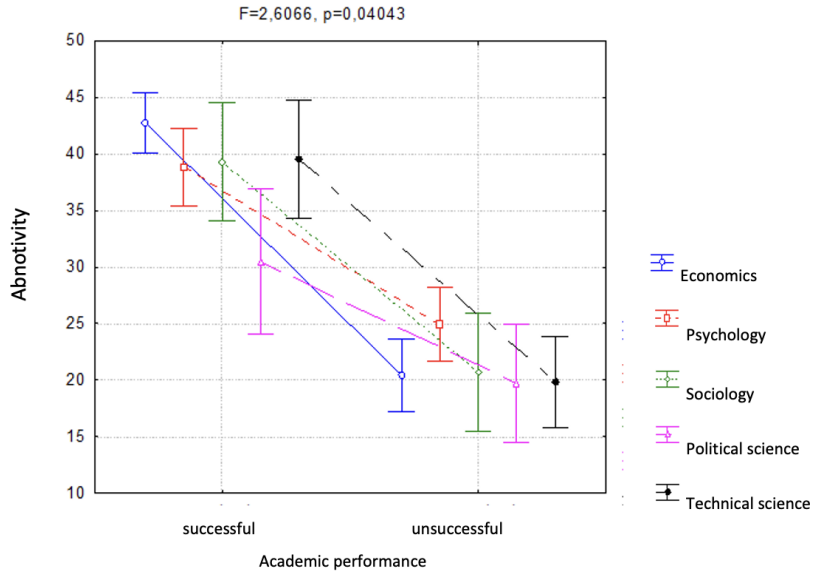


Fig. 3.19. **Indicators of abnotivity of students of different specialities depending on the level of academic performance**

The level of academic performance has a positive effect on the abnotivity rates of students of all specialities.

## 3.4. Intercorrelations of metacognitive soft skills of future specialists

Table 3.22 shows the correlations between indicators of students' verbal and figurative creativity.

Table 3.22

**Correlations of students' verbal creativity and figurative creativity indicators**

| Indicators | Speed of FC | Originality of FC | Abstractness of title in FC | Resistance to premature closure in FC | Elaboration of FC |
|---|---|---|---|---|---|
| Speed of VC | -0.04 | -0.02 | -0.08 | -0.03 | -0.01 |
| Flexibility of VC | 0.41**** | 0.45**** | 0.18* | 0.38**** | 0.38**** |
| Originality of VC | 0.75**** | 0.91**** | 0.23* | 0.62**** | 0.69**** |
| Elaboration of VC | 0,.34*** | 0.49**** | 0.06 | 0.42**** | 0.29** |

* Statistically significant difference between groups < 0.05.
** Statistically significant difference between groups < 0.01.
*** Statistically significant difference between groups < 0.001.
**** Statistically significant difference between groups < 0.0001.

The speed of verbal creativity has no correlations with the indicators of figurative creativity. In contrast, flexibility is correlated with all parameters used to assess figurative creativity, especially with figurative originality.

The strongest connections were found for the indicators of verbal creativity originality (the ability to produce creative original texts, metaphorical and symbolic textual activity) with the indicators of figurative creativity, especially with figurative originality as the ability to create unique figurative associations to visual stimuli.

The development of verbal creativity is related to all indicators of imaginative creativity, except for the abstractness of the title.

Table 3.23 shows the correlations between the indicators of verbal creativity and students' soft skills. The speed of verbal creativity has no relationship with students' metacognitive flexibility skills, and the indicators of thinking speed in general are also not related to verbal creativity. There were also no relationships between verbal creativity in general and indicators of metacognitive awareness and self-regulation, as well as strategic learning.

Table 3.23

**Correlations of indicators of verbal creativity (VC) and other metacognitive skills of students**

| Indicators | Systemic thinking | Speed of thinking | Flexibility of thinking | Critical thinking (factual) | Critical thinking (self-assessment) | Abnotivity |
|---|---|---|---|---|---|---|
| Speed of VC | -0.08 | 0.06 | -0.03 | 0.02 | 0.02 | 0.03 |
| Flexibility of VC | 0.24* | 0.05 | 0.47**** | 0.41**** | 0,42**** | 0.39**** |
| Originality of VC | 0.55*** | 0.03 | 0.86**** | 0.82**** | 0.83**** | 0.80**** |
| Elaboration of VC | 0.27** | -0.01 | 0.41**** | 0.43**** | 0.49**** | 0.47**** |

* Statistically significant difference between groups < 0.05.

** Statistically significant difference between groups < 0.01.

*** Statistically significant difference between groups < 0.001.

**** Statistically significant difference between groups < 0.0001.

Systemic thinking, critical thinking, abstract thinking and flexibility of thinking have positive correlations with originality, elaboration and flexibility of verbal creativity.

Table 3.24 shows the correlations between the indicators of imaginative creativity and students' soft skills.

Table 3.24

**Correlations of indicators of imaginative creativity (IC) and other metacognitive skills of students**

| Indicators | Systemic thinking | Speed of thinking | Flexibility of thinking | Critical thinking (factual) | Critical thinking (self-assessment) | Abnotivity |
|---|---|---|---|---|---|---|
| Speed of IC | 0.43**** | 0.03 | 0.66**** | 0.58**** | 0.58**** | 0.58**** |
| Originality of IC | 0.64**** | 0.16 | 0.92**** | 0.88**** | 0.88**** | 0.87**** |
| Abstractness of title in IC | 0.36*** | 0.15 | 0.38**** | 0.31*** | 0.30*** | 0.32*** |
| Resistance of IC | 0,.55**** | 0.20* | 0.68**** | 0.65**** | 0.67**** | 0.62**** |
| Elaboration of IC | 0.46**** | 0.10 | 0.70**** | 0.59**** | 0.64**** | 0.62**** |

* Statistically significant difference between groups < 0.05.

** Statistically significant difference between groups < 0.01.

*** Statistically significant difference between groups < 0.001.

**** Statistically significant difference between groups < 0.0001.

Imaginative creativity has more connections with other metacognitive skills than verbal creativity. The strength of these connections is also greater. Systemic thinking is positively related to all dimensions of imaginative creativity, especially originality and resistance to closure. However, there were

no connections between imaginative creativity in general and indicators of metacognitive awareness and self-regulation, as well as strategic learning.

The speed of thinking has only one connection with indicators of resistance to the closure of imaginative creativity.

Flexibility and critical thinking are positively related to all parameters of imaginative creativity, especially originality and resistance to closure.

Students' abnotivity is related to all other creative metacognitive skills, especially to the originality of imaginative creativity.

Table 3.25 shows the correlations between the indicators of systemic thinking and students' soft skills.

Table 3.25

**Correlations of indicators of systemic thinking and other metacognitive skills of students**

| Indicators | Systemic thinking |
|---|---|
| Metacognitive engagement | 0.24* |
| Metacognitive self-regulation | 0.14 |
| Strategic approach to learning | 0.24* |
| Speed of thinking | 0.09 |
| Flexibility of thinking | 0.68**** |
| Curiosity | 0.13 |
| Critical thinking (factual) | 0.69**** |
| Critical thinking (self-assessment) | 0.70**** |
| Abnotivity | 0.68**** |

* Statistically significant difference between groups < 0.05.

**** Statistically significant difference between groups < 0.0001.

Systemic thinking as the ability to consider an educational, life or professional problem as a whole, in the totality of the links between different factors of this problem, the ability to find cause-and-effect patterns of this problem is associated with critical thinking and abnormality, flexibility of thinking and strategic learning, as well as metacognitive inclusion.

Strategic learning as a student's plan and strategy for studying at a higher education institution, the ability to use various metacognitive strategies in their own educational practice involves strong links with metacognitive awareness and metacognitive self-regulation.

Table 3.26 shows the correlations between metacognitive engagement and self-regulation and students' soft skills.

Table 3.26

**Correlations of metacognitive engagement and self-regulation with other metacognitive skills of students**

| Indicators | Metacognitive engagement | Metacognitive self-regulation |
|---|---|---|
| Strategic approach to learning | 0.92**** | 0.87**** |
| Speed of thinking | 0.12 | 0.11 |
| Flexibility of thinking | 0.15 | 0.05 |
| Curiosity | 0,.84**** | 0.70**** |
| Critical thinking (factual) | 0.21* | 0.12 |
| Critical thinking (self-assessment) | 0.15 | 0.05 |
| Abnotivity | 0.17 | 0.08 |

* Statistically significant difference between groups < 0.05.

**** Statistically significant difference between groups < 0.0001.

In addition, metacognitive engagement as the ability to be aware of one's own cognitive strategies, the ability to focus on the material, consciously make certain efforts to plan the fastest and most effective study of the material, as well as metacognitive self-regulation as the ability to manage one's own attention, study fatigue, distribute efforts according to the priority and complexity of cognitive tasks, manage one's own memory and thinking have positive links with students' curiosity.

Table 3.27 shows the correlations between indicators of strategic learning and students' soft skills.

Table 3.27

**Correlations of metacognitive engagement and self-regulation with other metacognitive skills of students**

| Indicators | Strategic approach to learning |
|---|---|
| Speed of thinking | 0.13 |
| Flexibility of thinking | 0.16 |
| Curiosity | 0.74**** |
| Critical thinking (factual) | 0.23* |
| Critical thinking (self-assessment) | 0.15 |
| Abnotivity | 0.19* |

* Statistically significant difference between groups < 0.05.

**** Statistically significant difference between groups < 0.0001.

Strategic learning is positively related to students' curiosity and abnormality.

Table 3.28 shows the correlations between the indicators of speed and flexibility of thinking and students' soft skills.

Table 3.28

**Correlations of indicators of speed and flexibility of thinking with other metacognitive skills of students**

| Indicators | Speed of thinking | Flexibility of thinking |
|---|---|---|
| Curiosity | 0.15 | 0.12 |
| Critical thinking (factual) | 0.17 | 0.92**** |
| Critical thinking (self-assessment) | 0.18 | 0.94**** |
| Abnotivity | 0.22* | 0.90**** |

* Statistically significant difference between groups < 0.05.

**** Statistically significant difference between groups < 0.0001.

Thinking speed is positively related to abnormality, and flexibility is positively related to critical thinking and abnormality.

Table 3.29 shows the correlations between the indicators of students' abnormality and critical thinking.

Table 3.29

**Correlations of indicators of speed and flexibility of thinking with other metacognitive skills of students**

| Indicators | Abnotivity |
|---|---|
| Critical thinking (factual) | 0.91**** |
| Critical thinking (self-assessment) | 0.92**** |

**** Statistically significant difference between groups < 0.0001.

Abnormality as the ability of a student to explain the learning material to another student, the ability and desire to share their own experience of success in learning and solving educational tasks is inherent in students with a high level of critical thinking as impartiality, flexibility and adaptability in the way they explain the facts of reality.

Table 3.30 shows the factor structure of students' metacognitive skills, which explains 79 % of the variance. The first factor (factor weight 7.41, 39 % of variance) contained the majority of metacognitive skills, namely: flexibility of thinking, critical thinking (according to the test and questionnaire), originality of imaginative creativity, abnormality, originality of verbal creativity, systemic thinking, resistance to closure, speed and elaboration of imaginative creativity. The factor was named "Flexibility of creative thinking skills".

Table 3.30

**Factor structure of students' metacognitive skills**

| Factors / Indicators | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| Speed of VC | -0.114437 | 0.065665 | **0.752849** | **0.523514** | -0.090950 |
| Flexibility of VC | 0.368518 | 0.093943 | **0.666664** | -0.162743 | 0.213926 |
| Originality of VC | **0.893274** | -0.040150 | 0.165593 | -0.140190 | 0.124927 |
| Elaboration of VC | 0.476689 | -0.175207 | **0.615602** | -0.134985 | -0.033028 |
| Speed of FC | **0.665221** | -0.016221 | 0.137705 | -0.229068 | 0.400956 |
| Originality of FC | **0.931390** | 0.052166 | 0.131268 | -0.017897 | 0.198760 |
| Abstractness of title in FC | 0.205628 | 0.047726 | -0.069906 | 0.148031 | **0.875908** |
| Resistance to premature closure in FC | **0.660948** | 0.069851 | 0.128122 | 0.070432 | 0.465222 |
| Elaboration of FC | **0.611445** | 0.031267 | 0.103491 | -0.075568 | **0.625824** |
| Systemic thinking | **0.740266** | 0.158680 | -0.128633 | 0.046303 | 0.131170 |
| Metacognitive engagement | 0.085558 | **0.969388** | -0.001871 | 0.037694 | 0.060792 |
| Metacognitive self-regulation | 0.011217 | **0.926874** | 0.026823 | -0.012458 | -0.020529 |
| Strategic approach to learning | 0.108904 | **0.944108** | -0.002102 | 0.040058 | 0.034715 |
| Speed of thinking | 0.128960 | 0.084417 | 0.040863 | **0.910245** | 0.098399 |
| Flexibility of thinking | **0.937489** | 0.054623 | 0.083891 | 0.095719 | 0.186707 |
| Curiosity | 0.072884 | **0.866213** | 0.022304 | 0.062380 | 0.027336 |
| Critical thinking (factual) | **0.932455** | 0.122914 | 0.086397 | 0.084188 | 0.056686 |
| Critical thinking (self-assessment) | **0.944064** | 0.060627 | 0.117966 | 0.102114 | 0.071008 |
| Abnotivity | **0.923704** | 0.085455 | 0.099202 | 0.147145 | 0.069207 |
| Total variance | 7.419167 | 3.558413 | 1.543517 | 1.085785 | 1.727169 |
| Total | 0.390482 | 0.187285 | 0.081238 | 0.057147 | 0.090904 |

*Note.* Table 3.30 marked the highest factor coefficients, which show which factor each indicator belongs to.

The second factor (factor weight 3.55, 19 % of variance) was formed by indicators of metacognitive engagement, strategic learning, metacognitive self-regulation and curiosity. The factor was named "Soft skills of effective learning".

The third factor (factor weight 1.54, 8 % of variance) was formed by indicators of speed, flexibility and elaboration of verbal creativity. The factor was named "Soft effective writing skills".

The fourth factor (factor weight 1.08, 6 % of variance) is represented by indicators of speed of thinking and speed of verbal creativity, so it was named "Soft skills of speed of thinking".

The fifth factor (factor weight 1.72, 9 % of variance) is represented by indicators of abstractness of the title and the development of figurative creativity, so it was named "Soft visual thinking skills".

## 3.5. The program for the development of metacognitive soft skills of future technical specialists

The program of psychological support for metacognitive soft skills was implemented in the following areas:

1) development of systemic thinking;
2) development of flexibility of thinking to form the ability to reframe learning;
3) development of verbal and imaginative creativity;
4) development of critical thinking;
5) mastering metacognitive learning strategies;
6) promotion of curiosity and abnormality.

All developmental areas were implemented through the introduction of lectures and training seminars for students, where they had the opportunity to learn about the leading metacognitive strategies (lecture "Metacognitive learning strategies"), means of activating systemic thinking (practical seminar "Systemic thinking"). Developmental interventions to build flexibility and critical thinking, as well as verbal and imaginative creativity, were implemented through training.

In order to activate *systemic thinking*, O. Yakovenko recommends techniques that contribute to the effectiveness of problem solving: 1) generalisation, since a particular problem is part of a more generalised problem; when generalisation is carried out, a more significant problem can be considered; 2) detailing, which involves not enlarging the problem, but, on the contrary, its detailing, paying attention to the smallest details; 3) search for analogies, the main principle of which is the ability to abstract from the problem and provide an opportunity to look at it from other sides; comparing a problem with another problem opens up prospects for solution; to formulate analogies, the phrase: "this problem is similar to..." should be used; students should try to find known analogies, regardless of the degree of their correctness, including the areas most distant from the problem; 4) "using what you already have" is a mechanism of the reverse process of determining

what you need to do or acquire to solve a problem or achieve goals; to this end, after formulating the goal, students should ask the question: "What do I need to use?" and "How can I use what I already have?"; the possible answers are in line with the goal; possible answers are written in columns called "people", "talents and abilities", "things"; then ideas should be put forward, clearly formulated, as quickly as possible, listing all the people, talents, abilities and things that can be used, and then they should evaluate them and choose a useful, productive option that meets the goal; 5) "action should start with what is not yet there": order should be established when there is no chaos [30].

A separate direction of the psychological support program is the introduction of metacognitive learning methods, which include externalization, further strengthening the use of metacognitive strategies and increasing their number [11]. In the development of metacognitive awareness and mastery of metacognitive and learning strategies, it is important to follow the sequence of mastering strategies, which promotes a conscious understanding of the strategy, discussing the benefits of strategies, practicing the use of strategies, demonstrating their transfer to new tasks. It should be noted that metacognitive strategies should be implemented after the student has gained an understanding of the concepts and skills. Secondly, metacognitive strategies should be used on an ongoing basis, as they are not automatic actions. Thirdly, metacognitive strategies allow for independent practice, which in turn contributes to the development of skills and their effectiveness. Fourth, it is necessary to monitor how students use the strategies and their success [4].

The development of metacognitive awareness and promotion of metacognitive skills according to O. Zaitseva's methodological principles also included a focus on the formation of components of metacognitive activity, in particular:

- adoption of the implicit theory of growing intelligence;
- adoption of learning goals;
- development of strategies for monitoring and self-assessment of learning;
- development of metacognitive knowledge;
- promotion of metacognitive activity and involvement in activities through the development of reflexivity in cognitive activity [6].

Among a number of techniques and methods for developing metacognitive awareness, the method of "thinking out loud" was proposed, aimed at developing the ability to obtain information about one's own strategies for solving logical problems. Exercises using this method are aimed at activating efforts to distribute attention (forming judgements about knowledge that is or is not currently in memory). The proposed method of "thinking out loud" involves saying out loud everything that one thinks about and what happens to him/her during the task. Oral reports by the student in the process of performing the memorisation task allow us to determine what knowledge the individual retrieves from memory to solve the task. The procedure was implemented through the following stages: activation of internal speech (the student asks himself questions); improvement of the ability to use internal speech with the help of comments (comments that contribute to solving the problem step by step); evaluation of the use of internal speech (the student thinks about the internal speech comments to solve problems) [4].

Training sessions within the framework of psychological support for the development of thinking and metacognitive soft skills were presented in two blocks: 1) mastering metacognitive strategies (3 sessions for a total of 9 hours); 2) developing flexibility and critical thinking (3 sessions for a total of 9 hours); 3) developing creativity (6 sessions for a total of 24 hours).

In order to master *metacognitive strategies*, the following exercises were used: "Clusters", "Insert", "Common – unique", "Logbook", "Diaries", "Thick and thin questions", aimed at developing skills in working with notes and educational texts, mastering the ability to build structural information tables on the material being studied, development of the ability to identify semantic units of the text in order to develop analytical skills in information processing, development of the ability to conduct semantic analysis of the text and update knowledge and providing for the acquisition of skills of marking the text while reading, development of analytical skills, activation of mental activity while reading, listening and thinking [4].

The exercise "PMI – plus or minus information" was aimed at activating the emotional attitude to the material being studied, the technique "I know, I want to know, I have learned" – to master the skills of knowledge systematization and self-regulation of cognitive activity; exercises "What? Where? When? Why?" – to activate mental activity by answering key

questions, exercises "Conceptual table" – to develop skills of systematization of what has been learnt by asking three or more questions [4].

In order to develop the ability to associative memorization, the following exercises were used "Associative memorization", "Memorization in a rigid sequence", "Memorization by plot", "Fiji". These exercises helped to familiarize students with the techniques of memorization by reference, the skills of effective memorization of numerical material, and to learn the method of figurative visualization and eidotechnics [4].

To develop the ability to apply metacognitive strategies and develop voluntary attention and memorization, the following game exercises were used "Sherlock Holmes", "Sculptor", "Fingers", "Lame monkey", "Super attention", "Cross-parallel", "Synesthesia", "Actions to help memorize material", "Planning, monitoring and evaluation" [4].

The next series of exercises was aimed at developing the metalinguistic abilities and forming the future specialists' ability to read effectively, in particular through the use of the exercises "Looks like… sounds like", "Syncwire", "Concept wheel", "Correct and incorrect answers", "Prediction tree", "SQ3R" technique, "Cross discussion table", "Annotation graph", "Reading with stops", "RAFT" strategy [4].

In order to develop *verbal creativity*, the following exercises were used: "Story" (writing a short story on a given topic), "Word" (writing as many words of one big word as possible in five minutes), "Possible ways to use an object" (aimed at developing the speed of thinking and implemented through brainstorming), "Common features" (for each pair of words, write the properties that unite them), "Listing of features that are not suitable for the given profession", (to indicate characteristics that are undesirable or even harmful for the realization of this profession), "A story in one sentence", which was aimed at forming the conciseness of the idea of the desired work for writing, "Timeline of events of the work" (writing the timeline (plot line) of the planned work in the form of a tree, where each branch is a new branch of the story), "Time limit" (writing everything that comes to mind for a certain time; then expand the text in any aspect, spend another minute improving the new development of the text; then expand the text in any aspect, and finally improve the new development and complete the story), "Autobiography" (writing your own biography in an unusual way), "Photography" (writing a story based on a photograph known to the participants), "Finish the story"

(writing a story on a given topic, completing the initial sentence), the game "A chain of associations", as well as exercises "Hyperbolization of a character's trait", "An unexpected narrator", "Synopsis", "Colour text", "Verbal still life", "Cloud", "Three words", "Missing words" [18; 24; 27; 28].

The following techniques were used to develop *imaginative creativity* "Squiggles", "Coffee stains", "Pictograms" and "Animal". The technique "Pictograms", the exercise "Doodling" and "Zentangle", free drawing techniques, the exercise "Drawing by instruction", the technique "Drudge", and the games "Geometry of imagination", and "Drawing board" were used [27; 28].

In order to develop *critical thinking*, exercises were used to improve the ability to think inductively and deductively, the ability to assess the plausibility of judgements, and the ability to identify assumptions and arguments. In this developmental area, debates and the game "Club of connoisseurs" were used. In addition, the students performed the exercise "Ideal strategy" aimed at developing problem-solving skills in information assimilation and critical thinking skills. The exercise "Fishbone strategy" was aimed at developing the ability to formulate and solve problem issues and simultaneously address a large number of problem issues [4].

## 3.6. The results of a longitudinal study of the development of metacognitive soft skills of future specialists

Analyzing the indicators of the speed of verbal creativity of students of different specialities during their studies at university (Fig. 3.20), one should note that there were no statistically significant changes.

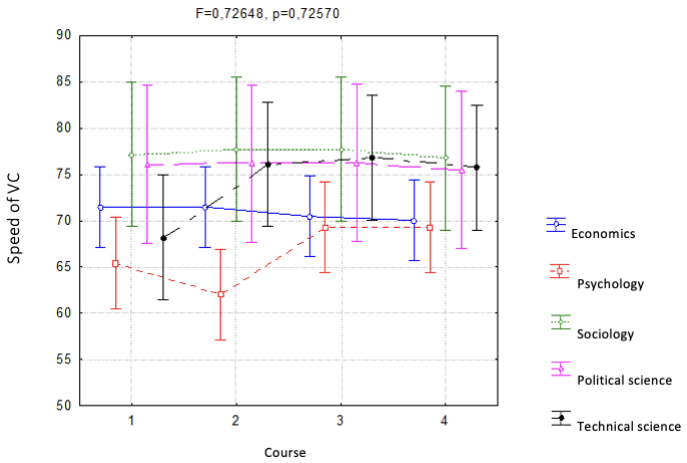


Fig. 3.20. **The dynamics of indicators of verbal creativity speed**

From the first to the second year of study, there was a decrease in the indicators of verbal fluency of future psychologists, but due to their involvement in the program of psychological support for the development of thinking and metacognitive soft skills, these indicators increased and reached the level typical of future economists. The absence of significant changes in the speed of verbal creativity of future psychologists from the third to the fourth year of study, after the implementation of the program, indicates the sustainability of the intervention effect.

Analyzing the indicators of flexibility of verbal creativity of students of different specialities during their studies at the university (Fig. 3.21), one should note that there were no statistically significant changes.

As a result of involvement in the program of psychological support for the development of thinking and metacognitive soft skills of psychology students, their indicators of verbal creativity flexibility increased and reached the level typical of students of other specialities. The absence of significant changes in the flexibility of verbal creativity of future psychologists from the third to the fourth year of study, after the implementation of the program, indicates the sustainability of the intervention effect.

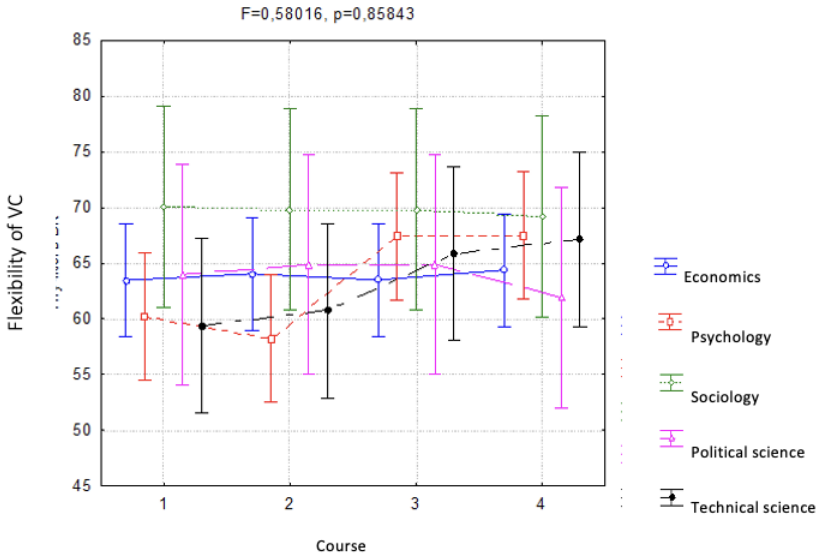


Fig. 3.21. **The dynamics of indicators of verbal creativity flexibility**

Analyzing the indicators of originality of verbal creativity of students of different specialities during their studies at the university (Fig. 3.22), one should note that there were no statistically significant changes.

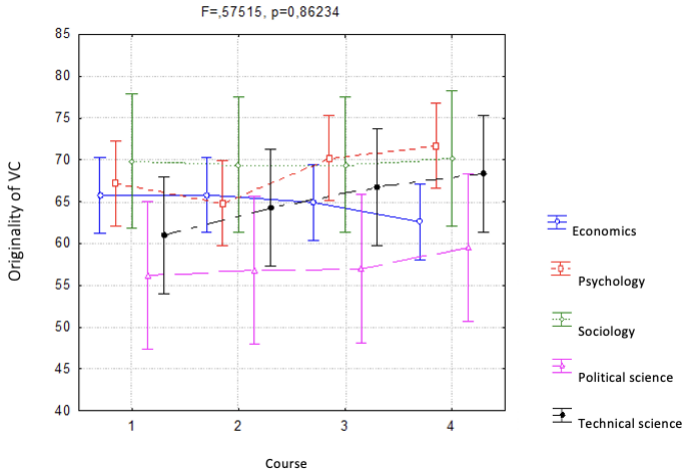


Fig. 3.22. **The dynamics of indicators of verbal creativity originality**

Analyzing the indicators of the elaboration of verbal creativity of students of different specialities during their studies at the university (Fig. 3.23), one should note that there were no statistically significant changes.

As a result of involvement in the program of psychological support for the development of thinking and metacognitive soft skills of psychology students, the indicators of verbal creativity increased and reached the highest level among students of all specialities. The absence of significant changes in the development of verbal creativity of future psychologists from the third to the fourth year of study, after the implementation of the program, indicates the sustainability of the intervention effect.

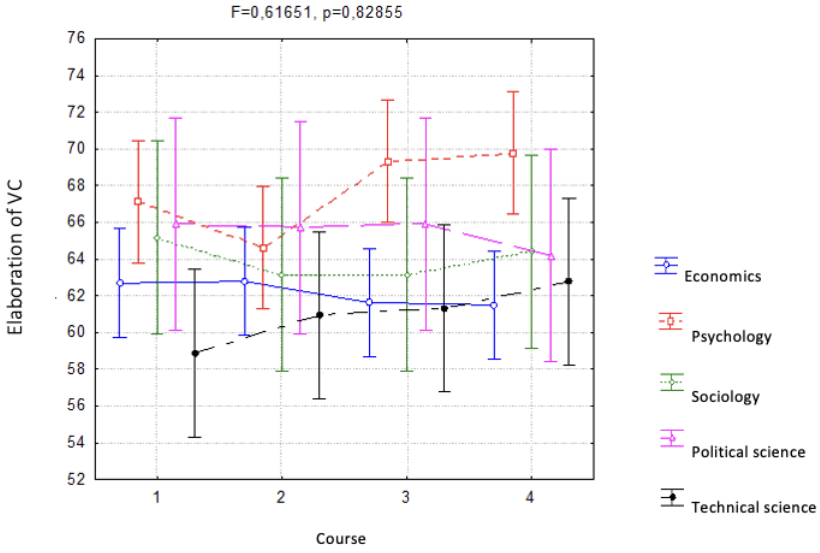


Fig. 3.23. **The dynamics of indicators of verbal creativity elaboration**

The speed of non-verbal creativity of students of different specialities did not change during their studies at the university (Fig. 3.24).

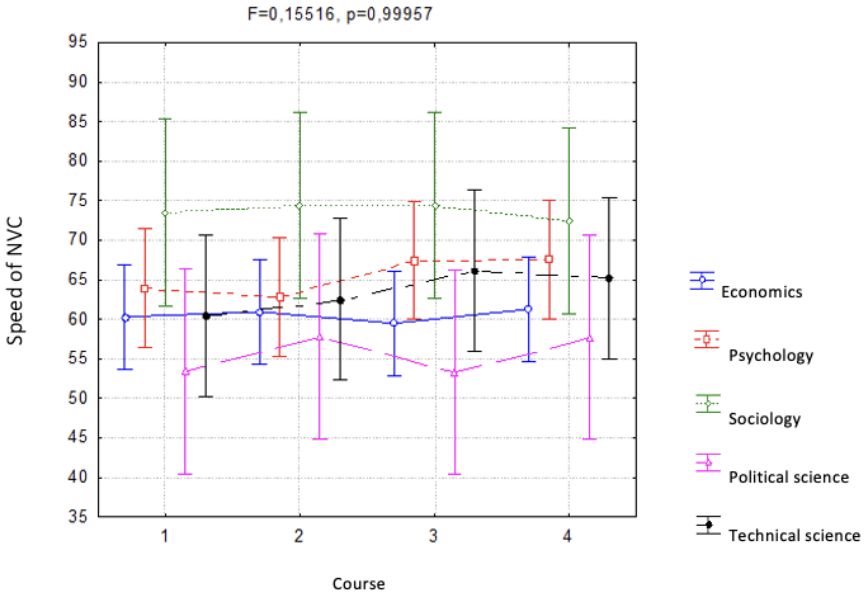


Fig. 3.24. **The dynamics of indicators of the speed of non-verbal creativity**

Analyzing the indicators of the speed of non-verbal creativity of students of different specialities during their studies at university (Fig. 3.25), one should note that there were no statistically significant changes.

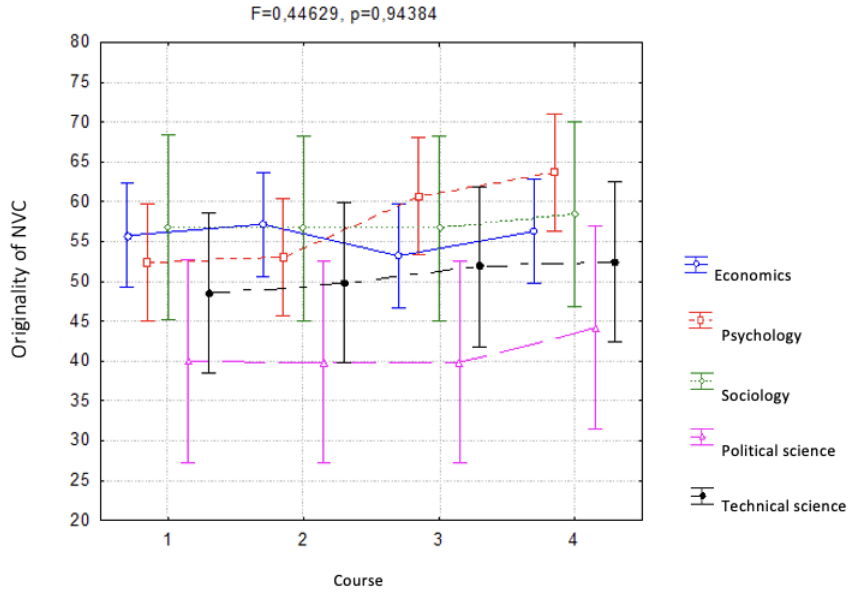


Fig. 3.25. **The dynamics of originality indicators of non-verbal creativity**

Indicators of abstractness of non-verbal creativity of students of different specialities did not change during their studies at the university (Fig. 3.26).

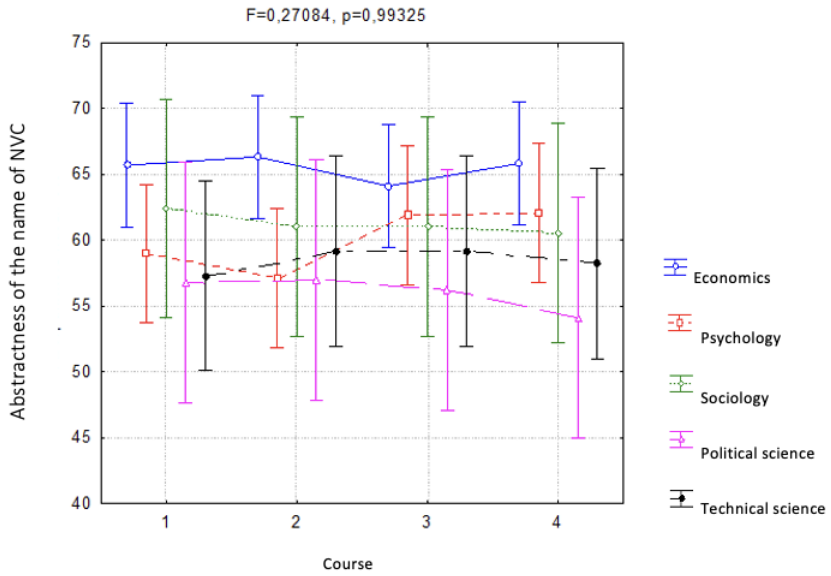


Fig. 3.26. **The dynamics of abstractness indicators of the name of non-verbal creativity**

Indicators of resistance to locking up non-verbal creativity of psychology students statistically significantly increased in the third year after the implementation of the program of psychological support for the development of thinking and metacognitive soft skills, while students of other specialities for whom such the program was not provided do not differ in significant dynamics of indicators of resistance to closure up as an ability to produce creative ideas sustainably (Fig. 3.27).

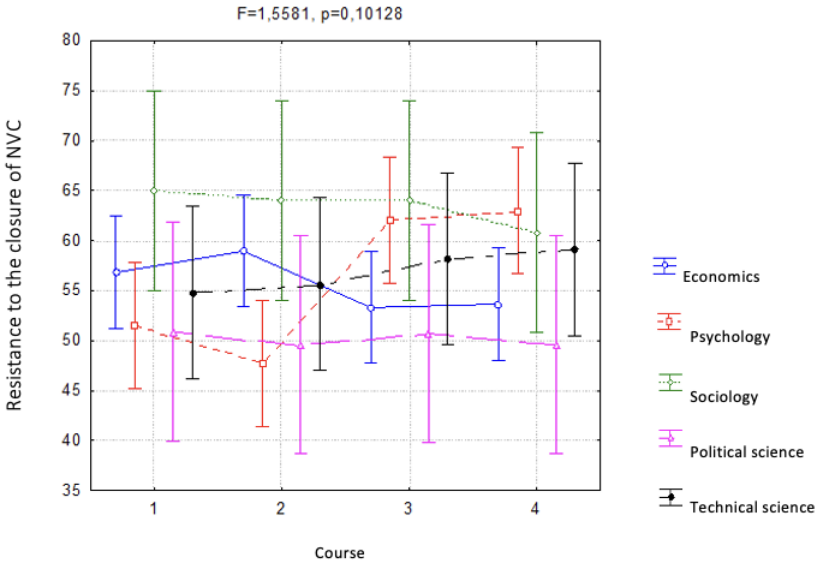


Fig. 3.27. **The dynamics of indicators of resistance to the closure of non-verbal creativity**

Analyzing the indicators of the development of non-verbal creativity of students of different specialities during their studies at the university (Fig. 3.28), one should note that there were no statistically significant changes.

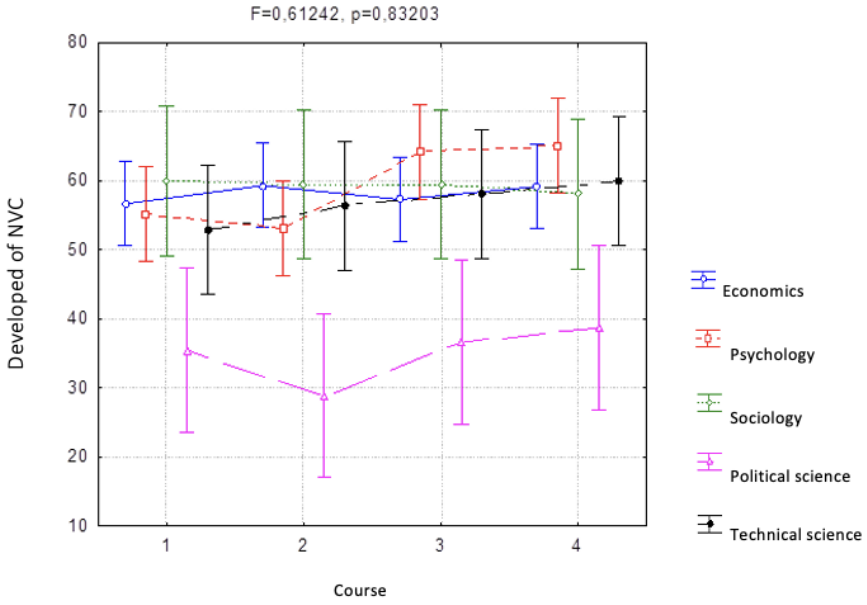


Fig. 3.28. **The dynamics of indicators of non-verbal creativity development**

Fig. 3.29 shows a significant positive shift in the indicators of systemic thinking of psychologists after the implementation of the support program, while students of other specialities did not experience such changes.

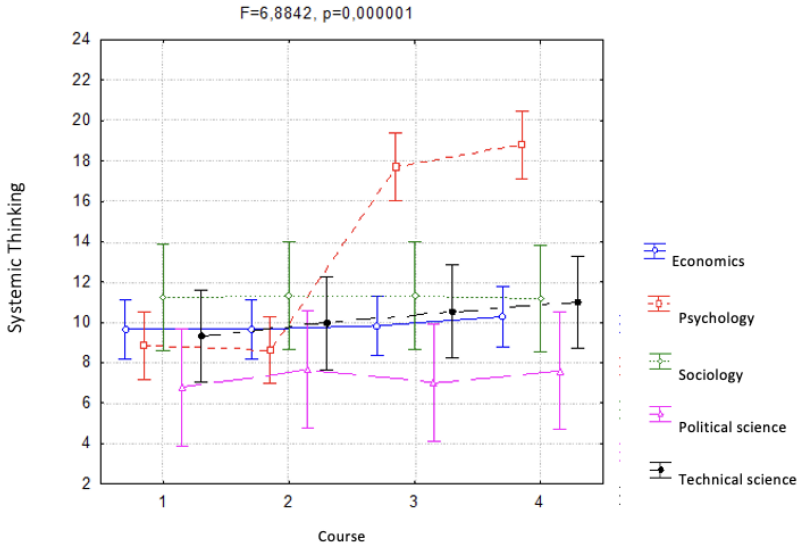


Fig. 3.29. **The dynamics of systemic thinking indicators**

Fig. 3.30 shows a significant positive shift in the indicators of metacognitive inclusion of psychologists after the implementation of the support program, while students of other specialities did not experience such changes.

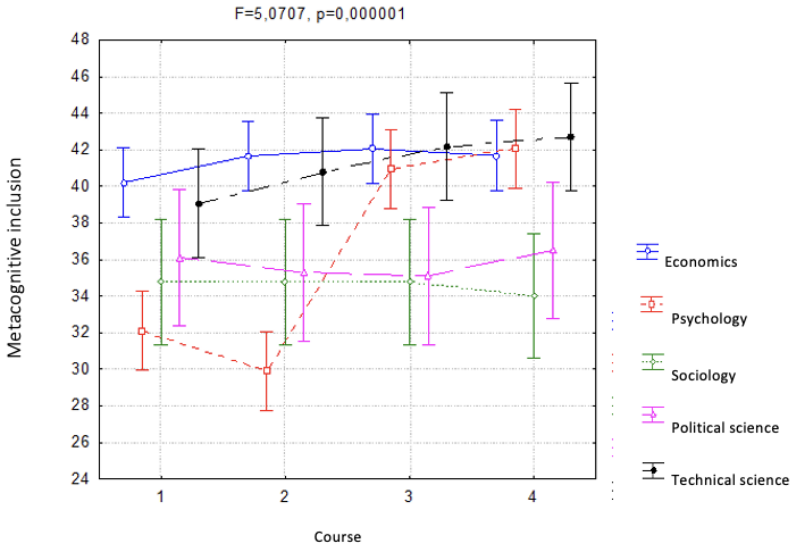


Fig. 3.30. **The dynamics of metacognitive inclusion indicators**

Metacognitive inclusion was developed at the lowest level among psychologists, but after implementation of the program it increased to the level of students of economic and technical specialities.

Analyzing the indicators of metacognitive self-regulation of students of different specialities during their studies at university (Fig. 3.31), one should note that there were no statistically significant changes.

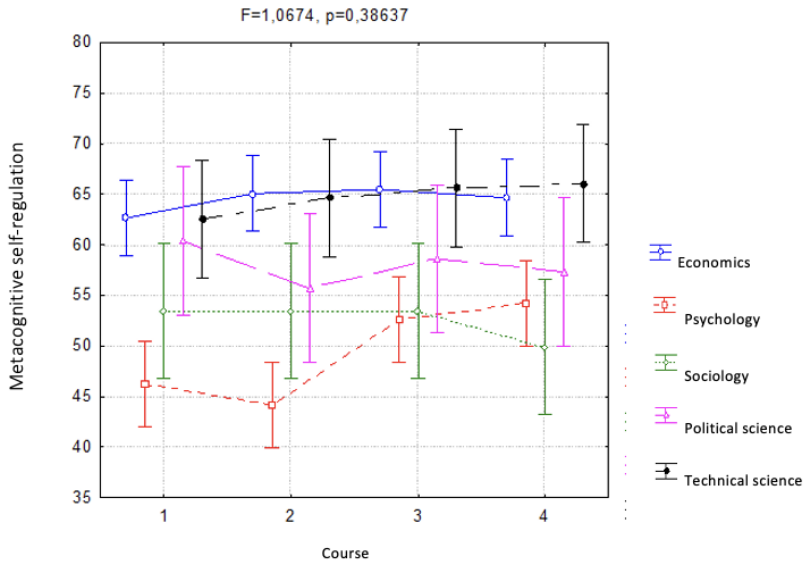


Fig. 3.31. **The dynamics of metacognitive self-regulation indicators**

Fig. 3.32 shows a significant positive shift in the indicators of strategic learning among psychologists after the implementation of the support program, while students of other specialities did not experience such changes. Strategic learning was developed at the lowest level among psychologists, but after the program it increased to the level of students of economic and technical specialities.

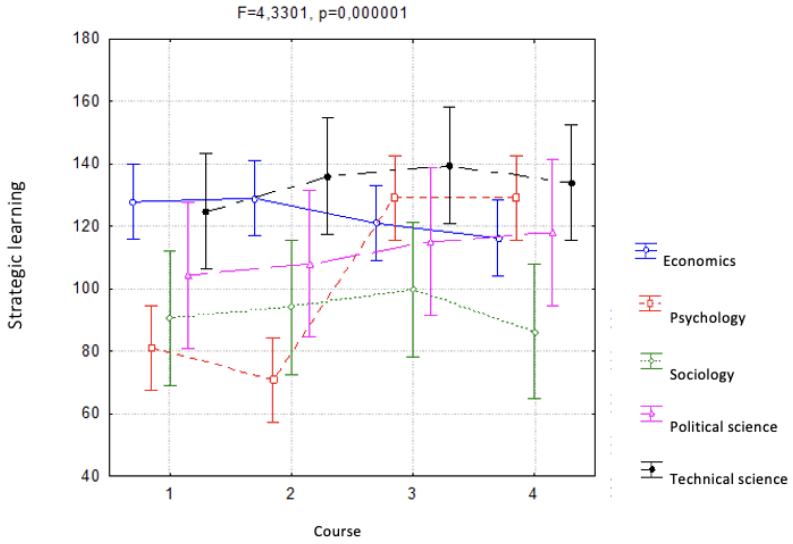


Fig. 3.32. **The dynamics of strategic learning indicators**

Analyzing the indicators of the speed of thinking of students of different specialities during their studies at the university (Fig. 3.33), it should be noted that there were no statistically significant changes.

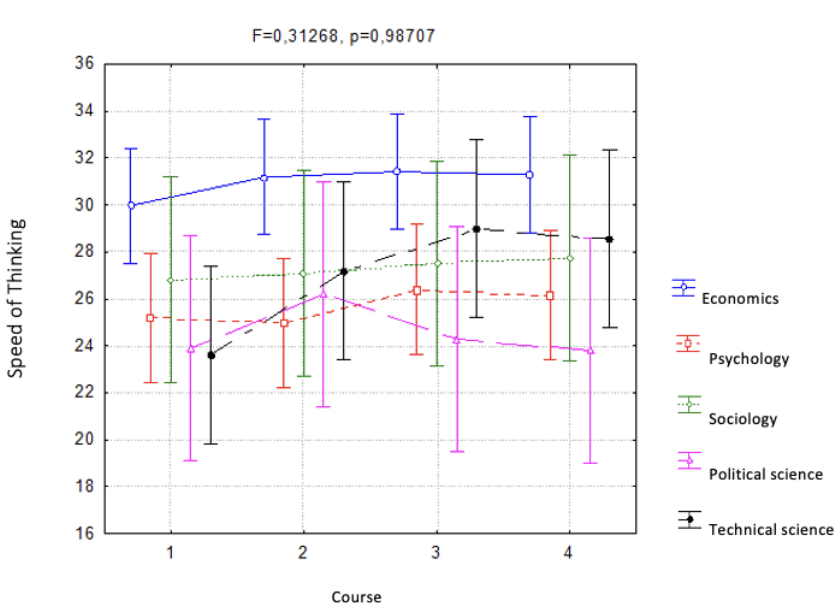


Fig. 3.33. **The dynamics of thinking speed indicators**

Analysing the indicators of flexibility of thinking of students of different specialities during their studies at the university (Fig. 3.34), it should be noted that there were no statistically significant changes.

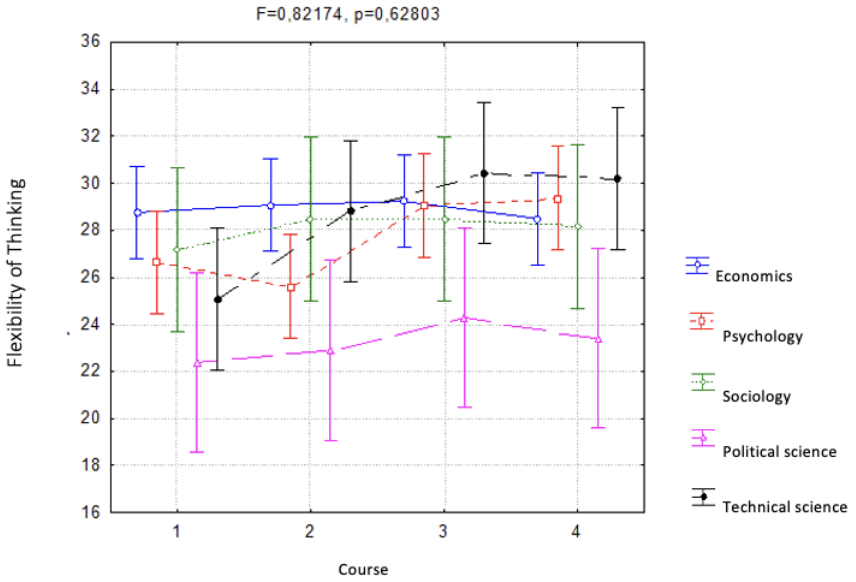


Fig. 3.34. **The dynamics of flexibility of thinking indicators**

Fig. 3.35 shows a significant positive shift in the curiosity indicators of psychologists after the implementation of the support program, while students of other specialities did not experience such changes. Curiosity was developed at the lowest level among psychologists, but after the program it increased to the level of students of economic and technical specialities.

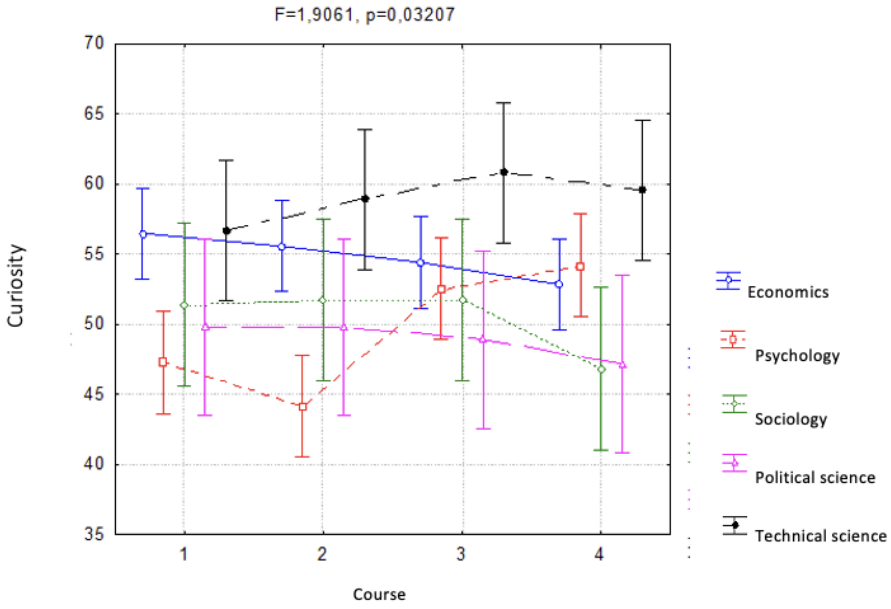


Fig. 3.35. **The dynamics of curiosity indicators**

Fig. 3.36 shows a significant positive shift in the critical thinking indicators of psychologists after the implementation of the support program, while students for other specialities did not experience such changes.

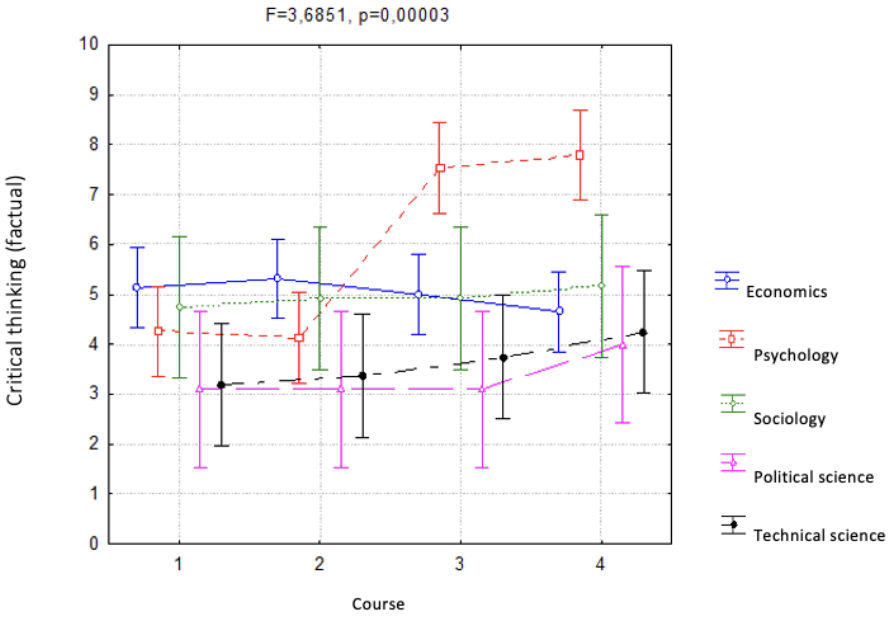


Fig. 3.36. **The dynamics of indicators of critical thinking (actual)**

Critical thinking was developed at the lowest level among psychologists, but after the program it increased to the highest level, but there were no significant changes in the analysis of ideas about their own critical thinking (Fig. 3.37).

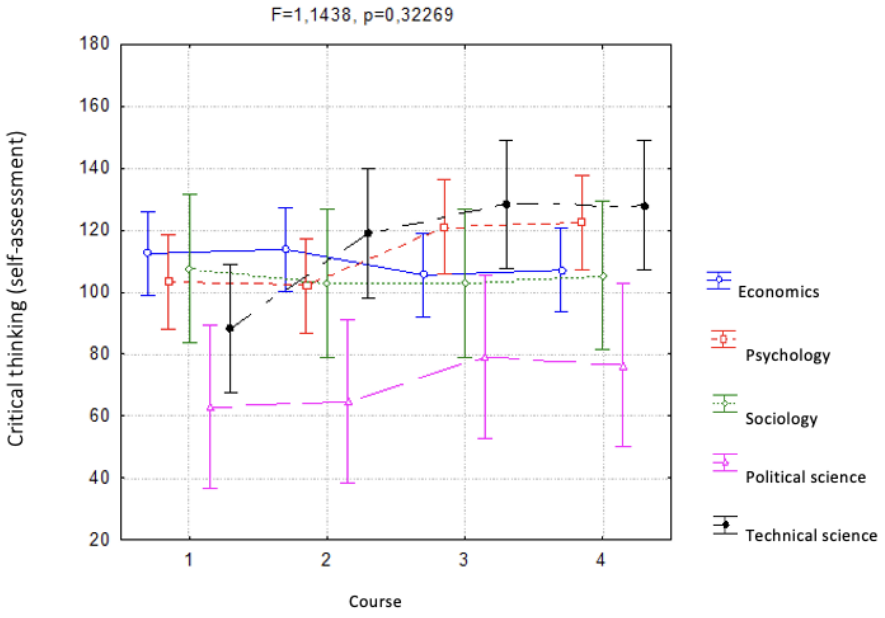


Fig. 3.37. **The dynamics of indicators of critical thinking (self-assessment)**

Fig. 3.38 shows a significant positive shift in the abnotivity rates of psychologists after the implementation of the support program, while no such changes occurred among students of other specialities.

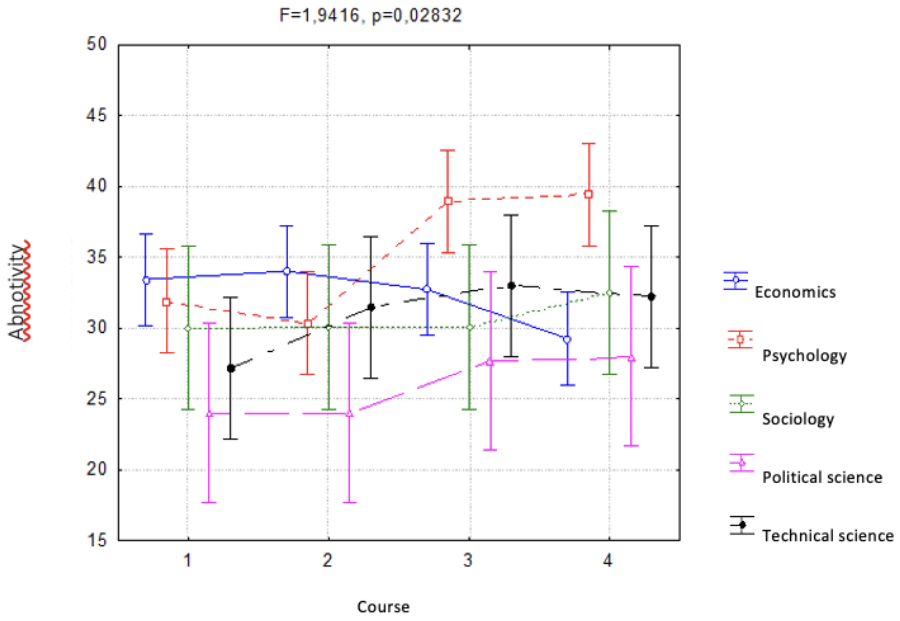


Fig. 3.38. **The dynamics of abnotivity indicators**

This is the effectiveness of targeted psychological support for psychology professionals, which may be related to their awareness of self-regulation methods and higher motivation for personal development.

## Conclusions

The conceptualization of a number of thinking and metacognitive soft skills allowed us to identify a list of the main ones: flexibility and speed of thinking, abnormality, creativity, metacognitive strategies and strategic learning as a learning ability, systemic thinking, curiosity and critical thinking.

A comparative analysis of the thinking and metacognitive soft skills of future specialists in the field of social sciences – psychologists, sociologists, political scientists, economists – and specialists in the technical field showed an advantage in the development of these skills among future economists and specialists in technical specialties, while future psychologists are inferior to other specialties in terms of the level of development of all metacognitive skills.

The academic performance of future specialists has proved to be significant for the development of thinking and metacognitive soft skills. Successful students have an advantage in the level of development of metacognitive awareness, flexibility, systematic and critical thinking, speed and originality of imaginative creativity and originality of verbal creativity, and abnotivity.

The correlation analysis revealed strong links between originality of creativity (both verbal and non-verbal) and flexibility and critical thinking. Metacognitive flexibility and curiosity were found to be most strongly related to students' strategic learning, and abnormality to flexibility of thinking. The structure of thinking and metacognitive flexibility skills is represented by five factors: flexible creative thinking skills, flexible effective learning skills, flexible effective writing skills, flexible thinking speed skills, and flexible visual thinking skills.

The program of psychological support for metacognitive flexibility skills was implemented in the areas of systemic thinking, flexibility of thinking to develop the ability to reframe learning, verbal and imaginative creativity, critical thinking, mastering metacognitive learning strategies, promoting curiosity and abnormality. The program was implemented with future psychologists who are inferior to other students in terms of the development of thinking and metacognitive flexibility skills.

The results of the longitudinal study revealed an increase in the indicators of thinking and metacognitive flexibility skills only among future psychologists in the period from the second to the third year of study after the implementation of the development program. Other specialities showed no changes in the level of development of thinking and metacognitive flexibility skills. At the end of their bachelor's studies, future psychologists showed a significant increase in all indicators of soft skills, especially the development and originality of verbal creativity, originality and resistance to closure of imaginative creativity, strategic learning, curiosity, critical thinking and abnotivity.

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НАУКОВЕ ВИДАННЯ

**Богдан** Жанна Борисівна

# ПСИХОЛОГІЯ SOFT SKILLS МАЙБУТНЬОГО ФАХІВЦЯ

**Монографія**

**(англ. мовою)**

*Самостійне електронне текстове мережеве видання*

Відповідальний за видання *Ж. Б. Богдан*

Відповідальний редактор *О. С. Вяткіна*

Редактор *З. В. Зобова*

Коректор *З. В. Зобова*

Досліджено психологічні засади soft skills як необхідних компетентностей для майбутніх фахівців на ринку праці, що стрімко розвивається. Проаналізовано ключові soft skills, такі як комунікація, лідерство, адаптивність, робота в команді і креативність, та їхню роль у професійному успіху. Особливу увагу приділено методам психологічного оцінювання та стратегіям розвитку цих навичок у здобувачів вищої освіти. Результати дослідження допомагають краще зрозуміти те, як soft skills сприяють працевлаштуванню, кар'єрному зростанню та соціальній адаптації, а також надають практичні рекомендації для освіти та професійного розвитку.

Рекомендовано для науковців, науково-педагогічних працівників, здобувачів усіх рівнів вищої освіти, фахівців, психологів-практиків, які вивчають розвиток soft skills у сучасній професійній діяльності.

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Видавець і виготовлювач – ХНЕУ ім. С. Кузнеця, 61165, м. Харків, просп. Науки, 9-А

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