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SWOT-Analysis of information technologies application to form future managers' communicative competence

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Abstract **— Interpersonal communication affects the state, behavior, attitudes, regulation of joint activities of all participants. The purpose of this study is to theoretically and experimentally prove the possibility of using breakthrough information technologies in the future managers' professional and communicative competence formation in a university. To achieve the aim the following tasks were stated: to determine the potential of breakthrough information technologies in the formation of professional and communicative competence of future managers; to develop the methodological support to the integrative technology and to check methodical and pedagogical efficiency of introduction of breakthrough information technologies in the process of future managers' professional and communicative competence formation. SWOT-analysis of the structure and content of the classification model of professional and communicative competence and SWOT-analysis of information technologies application in the educational process in order to form professional and communicative competence of future managers were made.**

It is noted that information technologies application is aimed at creating such forms and methods of future managers' professional and communicative competence formation, which provide effective disclosure of the individuality of the student, his/her cognitive processes, personal qualities, development of intelligence.

Keywords — interpersonal communication, interpersonal relations, information technologies, future managers, SWOT-analysis, Locus of control.

I. INTRODUCTION

The processes taking place due to the informatization of society provide not only the acceleration of scientific and technological progress, intellectualization of all types of human activity, but also to the creation of a qualitatively new information environment of society, ensuring the development of human creativity [6, 7, 10, 14].

The face of Russian companies is presented by young, active and talented professionals. The distinctive features of such teams are a creative environment, competent management and one of the highest levels of labor remuneration in the economy. In fact, some of the statements correspond to reality. The data of the analytical study of the personnel state confirm the problem of acute shortage in professional managers, as well as the unsatisfactory professional and qualification level of specialists. The solution of these problems at the level of the organization is in a comprehensive work which is based on a study of labor activity specifics of specialists-managers, their professional and motivational features in branch of economy [2, 3].

The need of future managers' professional and communicative competence formation is caused by the global processes of rapid automation and robotization of all industries and the development of a new education system focused on entering the world information and educational space. This process is accompanied by significant changes in the pedagogical theory and practice of the educational process, associated with the introduction of adjustments in the content of learning technologies, which should be adequate to modern technical capabilities and contribute to the harmonious entry of man into the information society.

The study of this problem may allow to remove the urgency of the objectively existing contradiction between the need of society for competent managers who are ready to use professional and communicative competence to solve professional problems, and the low level of formation of this competence.

Changes in the higher education associated with the development of the humanistic type academic teaching consciousness training that can implement the ideals of development of communicative potential of the learner

himself/herself in the field of didactics. Orientation on humanization of interpersonal relations, on establishment of subject-subject relations between the educator and the students represents relevance at the present stage of social and economic development and in the conditions of radical complication of social, economic, cultural and other factors. Interpersonal communication affects the state, behavior, attitudes, regulation of joint activities of all participants [8].

In pedagogy, various aspects of interpersonal communication were studied: theoretical and methodological foundations of communication (A.V. Mudrik, A.T. Kurakin, G.A. Tsukerman, L.I. Novikova, G.M. Andreeva, G.I. Shchukina), the impact of communication on the different qualities of a personality (V.I. Zhuravlev, E.P. Belozertsev, V.V. Popov, T.V. Frolova), communication in groups of various type (I.P. Ivanov, T.N. Malkovskaya), the development of communicative skills of future engineers in the process of group work are studied N.P. Kirillov, Y.P. Pokholkov, E.I. Osipov, E.A. Gorbatyuk, L.A. Shilenko, etc. Information technology in the educational process was considered by O.V. Mironenko, I.G. Zakharova, V.A. Traynev, E.S. Polat, M.Y. Bukharkina, M.V. Moiseyeva, A.E. Petrov.

According to scientists, information technologies provide new opportunities for knowledge transfer (teacher's activity), perception of knowledge (student's activity), evaluation of the quality of education and, of course, the comprehensive development of the student's personality in the process of training [15, 18]. The main purpose of informatization of education is to prepare graduates for "full and effective participation in everyday, social and professional spheres of life in the information society" [22, p. 57]. zaha

An example of the application of the Industry 4.0 concept in different spheres of industries and economics process has been presented in many research works: Alcacer V., Cruz-Machado V., Beard-Gunter A., Ellis, D.G., Found P.A., Garcia-Garza M.A., Ahuett-Garza H., Lopez M.G., Orta-Castanon P., Kurfess T.R., Coronado P.D., Guemes-Castorena D., French, T., Chute C., Kerin M., Lim S., Kim, J., Masood T., Egger J., Rossit D.A., Tohme, F., Frutos M., Scharl S., Praktiknjo A., Tran N.H., Park H.S., Nguyen Q.V., Hoang T.D., Vinaja R. and others [1, 4. 5, 9, 11, 13, 16, 17].

II. RESEARCH METHODOLOGY

The purpose of this study is to theoretically and experimentally prove the possibility of using breakthrough information technologies in the future managers' professional and communicative competence formation in a university. To achieve the goal the following tasks are set:

1. To determine the potential of breakthrough information technologies in the formation of professional and communicative competence of future managers.
2. To develop and prove the methodological support to the integrative technology of formation of professional and communicative competence of future managers.
3. To check methodical and pedagogical efficiency of introduction of breakthrough information technologies in the process of future managers' professional and communicative competence formation.

The object of the study is the organization of the process of future managers' professional and communicative competence formation. The subject of the research is breakthrough information technologies in the future managers' professional and communicative competence formation and their implementation in professional activity.

The methodological basis of the research is the ideas of Russian psychologists and teachers about the relationship between learning and communication, the understanding of the didactic process as a communicative one. The choice of research methods is determined by the meaning of research tasks. The comparative method was used as a guide. Main research methods: conceptual modeling and pedagogical experiment in its ascertaining and formative versions. The following empirical methods were identified from the system for solving specific problems of the study: questioning, testing, expert evaluation method (content analysis of products and activities, observation of participants, analysis of interview materials), self-assessment.

III. RESEARCH RESULTS

The psychologist P. Vaclavik described some properties of communication which are of great practical importance in the context of interpersonal interaction and are called axioms of human communication. Knowledge of these properties allows to explain what the researcher called pathological communication, i.e. complications that can lead to difficulties or even interpersonal communication problems [21].

Interpersonal communication is understood as the process of simultaneous interaction of communicants and their impact on each other. It is characterized by a number of features that distinguish it from other types of communication [14, 19, 20].

The inevitability and inevitability of interpersonal communication are explained by the very conditions of human existence-a person as a social phenomenon could not exist without communication, which is its most important need.

It should be emphasized that an important role in interpersonal relationships plays an emotional factor along with psychological and social factors. Phasing, which is observed in the development of interpersonal relations (establishment, maintenance, rise, decline, termination and possible resumption), is directly related to the nature of interpersonal communication in terms of its form and content. Interpersonal communication may take the form of interviews, debates, public or judicial hearings. These are so-called structured forms, each of which has its own characteristics due to specific functions and communicative situation. Interpersonal communication performs another specific function, called "conversion" changing the opinion of the individual and his/her social attitudes. SWOT-analysis of the structure and content of the classification model of professional and communicative competence (table 1) allows to conclude that this competence is evaluated on the basis of the set of skills formed by a graduate of the university and

his/her behavioral (psychological) reactions manifested in a variety of situations.

TABLE I. SWOT-ANALYSIS OF THE RESEARCH CONDUCTED IN THE FRAMEWORK OF THE PROBLEM OF FUTURE MANAGERS' PROFESSIONAL AND COMMUNICATIVE COMPETENCE FORMATION

Strengths (advantages)	**Weaknesses**
– stable motives of communication, stress resistance, empathy, sociability, adaptability, etc.; - the system of knowledge about communication (understanding other people in the process of their joint activities), - typological features of thinking, organizational and communication skills; - professional and psychological awareness, desire and practical readiness for communication due to the specifics of the activity included in the system of various communication links	– lack of interpersonal and group communication skills; - low level of ability to convince people; to organize interaction of participants of communication; - lack of motivation to carry out cognitive activity in relative independence from external influence; - low level of professional and psychological awareness, unwillingness and unpreparedness for communication
Development opportunities	**Threats for development**
- manager's professionalism, ability to negotiate; - motivation to carry out cognitive activity in relative independence from external influence; - opportunities to resolve conflicts; - integrative ability to establish partnerships based on mutual respect, understanding, trust and ensuring ethical behavior in conflict situations; - integrative ability to establish partnerships based on mutual respect, understanding, trust and ensuring ethical behavior in conflict situations.	- lack of professionalism and inability to resolve conflicts leads to bankruptcy of the company; - the unacceptable norms of behavior preferred by the Manager and the style of his communication with subordinates, - not the ability to choose levers for motivation and ways to resolve organizational conflicts; - lack of personal authority; - dissatisfaction from joint activities.

Source: compiled by the authors on the basis of the problem analysis of philosophical, sociological, psychological, pedagogical, social literature

Developed hierarchical model of social and professional competence can be used as a methodological basis for determining the system-activity model of the planned individual educational achievements of students in the context of determining the requirements for the results of their training.

The Locus control method was performed as part of the experiment [12]. Locus of control is a certain property of the individual to explain their success or failure in the external circumstances (externality, external locus of control), or internal factors (internality, internal locus of control).

Locus of control is a stable personal characteristic which is hard to change, but is finally formed in the processes of its socialization. Locus of control is quite an important component of motivational processes closely interrelated with other areas of research of mental properties and characteristics of individuals, for example, the theory of self-efficacy.

Analysis and study of locus control is carried out in order to be able to judge the cognitive style that manifests itself in the field of learning. Since the cognitive components of the psyche are present in all its manifestations, so the concept of locus control in psychology extend to personal characteristics in the processes of activity.

In order to determine the Locus of control, a number of techniques and a specialized questionnaire were developed which allows to identify patterns between other personality traits. Indicators of uncertainty, intolerance and social disadaptivity indicate low qualities of communicative competence. In addition, high rates (65 %) of internal orientation indicates that students are self-oriented and do not take into account external factors, and in an open market economy this is unacceptable. Based on the results of the research, it can be assumed that the level of formation of professional and communicative competence of students is low (fig. 1). In the future, this will affect the professional activities of the future manager. To solve this problem, it is necessary to implement information technologies in the educational process.

The results were following:

- External type (0-11 points) is a person interprets all events in his/her life as not depending on him/her, but on some other forces (God, fate, environmental conditions, chance, luck or bad luck, other people and their actions, etc.). Externals are emotionally unstable, prone to informal communication and behavior, unsociable, they have poor self-control and high tension (20%).
- Mixed type (12-32 points) is typical for most people. The peculiarities of their subjective control may vary somewhat depending on whether the situation is complex or simple, pleasant or unpleasant, etc., that is, a person in different circumstances can behave both as an internal and external types (15%).
- Internal type of (33-44 points) is a person with high level of subjective control and he/she believes that most important events in his/her life depends on his/her personal qualities (competence, purposefulness, tenacity, level abilities and camping on p.) and are natural consequences his/her own activities. He/she believes that he/she can influence the events of life. People with this locus of control have emotional stability, perseverance, determination, sociability, good self-control and restraint (65%) (Fig. 1).

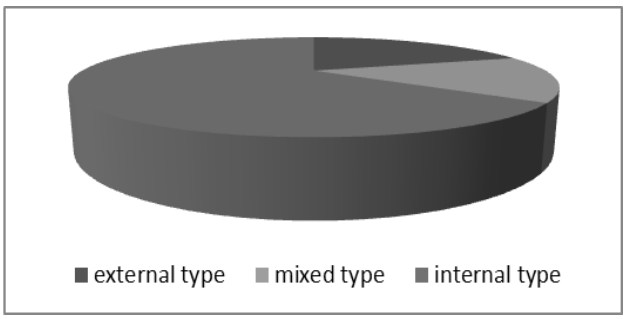

Fig. 1. Locus of control experiment

IV. DISCUSSION OF RESULTS

The use of information technologies is aimed at creating such forms and methods of future managers' professional and

communicative competence formation, which provide effective disclosure of the individuality of the student, his/her cognitive processes, personal qualities, development of intelligence. We are talking about changing the content of education, about mastering information culture as one of the components of the general culture, understood as the highest manifestation of education, including personal qualities of a person and his/her professional competence.

Active use of Internet technologies, telecommunication means in full-time educational process allow to speak about introduction of innovative processes by means of which there are changes of the various plan: the purposes and the maintenance of curricula, forms and methods of training change. By means of Information technologies, teachers and students can use Internet services that help facilitate learning and speed up the educational process [11, 13, 15, 18].

Among the existing breakthrough information technologies are the following:

1. Electronic conference.

Electronic conferences (EC), or, as they are often called, computer conferences, allow to receive on the computer monitor of the user, at a minimum, the texts of messages transmitted by the participants of the "conference", located at different distances from each other. The software depends on the mode of use of the EC.

2. Teleconferencing and Videophone.

These means provide two-way communication between the teacher and students. At the same time there is a simultaneous two-way transmission of video, sound and graphic illustrations. All this can be seen simultaneously in three Windows on the screen of each monitor subscribers. In group classes in a large classroom, it is possible to project the image of a computer monitor on a large screen using, for example, a liquid crystal or other projection device

Video telephony differs from video conferencing in the limited size and quality of visual information and the inability to use real-time computer applications.

TABLE II. SWOT-ANALYSIS OF THE USE OF INFORMATION TECHNOLOGIES IN ORDER TO FORM PROFESSIONAL AND COMMUNICATIVE COMPETENCE OF FUTURE MANAGERS

Strengths (advantages)	**Weaknesses**
– variety of forms of information presentation; - high degree of visibility; - ability to model a variety of processes; - good adaptability for the organization of collective research work; - the possibility of a differentiated approach to the work of students depending on the level of training, cognitive interests, etc.; - organization of operational control and assistance from the teacher; - ensuring the implementation of the mechanism of programmed learning with the help of appropriate computer programs; - self-study on the study of new material by various means, including a computer; - inclusion in the learning process of advanced technologies, including the base of modern telecommunications and computing facilities.	– the student does not have enough practice of dialogical communication, formation and formulation of thoughts in professional language; – low degree of communicative qualities ensuring constructive dialogue with colleagues – low ability to establish effective interaction with stakeholders on the basis of partnership, mutual understanding, cooperation and mutual assistance; – negative consequences: negative factors of psychological and pedagogical character and a range of factors of negative influence of means of ICT on a physiological condition and health of the student; – borrowing from the Internet ready-made projects, essays, reports and solutions of problems. - the presence of a low level of computer literacy, information culture, not the ability to use various software products to achieve this goal, not knowledge of the functional and didactic capabilities of IT
Development opportunities	**Threats for development**
– combine a variety of tools that contribute to a deeper and more conscious assimilation of the material studied, - time management allows to organize the training process for individual programs; the creation of an information environment that is stimulating interest in learning; - implementation of the intellectual control of the educational process, which can create conditions for individual and differentiated learning; –material becomes more fun, visual, strengthening its information capacity; - educational technologies are embedded as a subsystem in the information educational environment-distributed information educational system; - implementation of education, when students have the opportunity to participate in the organization of the learning process, choosing courses available in extra-curricular time thanks to telecommunications; – particular attention is paid to the introduction of modern forms in the learning process of persons with disabilities, which is especially important in the framework of the state program of the Russian Federation " Accessible environment».	– implementation of any IT occurs within the information educational environment; means providing hardware and software support of this educational technology should not be limited only to the separate computer with the program installed on it; - the absence of the possibility of forming creative thinking, which is based on dialogue; – computer addiction; - monologic communication with yourself (independent thinking) is not formed without a developed practice of dialogical communication; - decrease in the effectiveness of training and education due to the possibility of borrowing works from the Internet; - the impossibility of implementing continuous open education, when students can take an active part in the organization of the learning process, choosing courses available at any time thanks to telecommunications; - any IT implementation occurs within the information educational environment; means providing hardware and software support of this educational technology should not be limited only to the separate computer with the program installed on it; –efficiency decrease of independent work of student with traditional and electronic resources because of lack of skills of independent work

Source: compiled by the authors

It is possible to apply technologies of visualization of educational information within the framework of video conferences and TV conferences: intelligence map (mental map, diagram of connections, map of thoughts, associative map, mind map), brainstorming, concept trees, critical thinking technology, clusters, infographics, scribing and technology of asking questions: the technique of asking questions "6Why", cross-discussion. Technologies of visualization of educational information:

Visualization technologies allow to solve a number of pedagogical tasks: activation of educational and cognitive activity, provision of intensification of training, formation and development of critical and visual thinking, visual perception, imaginative representation of knowledge and learning activities, knowledge transfer.

V. CONCLUSION

Thus, communicative competence involves the experience of interacting with other people, which is required for successful functioning in a professional environment and in society in general and gives an opportunity to express and

perceive information; to understand non-verbal language; know the norms and rules of communication; make contact with others with regard to their status, socio-cultural and age characteristics; the ability to behave adequately to the situation and use it to achieve the goals.

This study proves theoretically and experimentally the possibility of information technologies application in the formation of professional and communicative competence of future managers in the university.

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