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Interaction with the Information Environment and Contemporary Educational Approaches in Higher Education (Educational Level "Master")

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Abstract: A new look at the professional training of a higher school teacher, in particular, a teacher of general technical disciplines and teaching methods for technology, the disclosure of their creative potential is based on contemporary methodological approaches. Let's consider in more detail each of the indicated approaches. The emergence of the information society is one of the signs of the transition of civilization into the noosphere. With the introduction of integrated communication networks, the possibilities of direct communication of individuals on a global scale are expanding. The introduction of computer and communication technologies into the daily life of people and into production makes a great socio-economic impact on the post-industrial society and causes such powerful social changes, it (society) turns into a completely new type – an information society, the structure and dynamics of which is based on the production of information, and not material values, as it was before. Information in such a society becomes a social and productive value. Hence the new features of society: a certain hierarchy of prestige, a specific type of education, information technology that provides a balance of dynamics and social statics, a fundamentally different manage-ment system, etc. Analysis of the introduction of degree training in higher pedagogical educational institutions of Ukraine allows us to identify general approaches in the implementation of master's programs, in particular: their focus on the bachelor's degree; variability, flexibility and mobility of master's education, taking into account current socio-economic trends and regional needs; scientific and practical pedagogical direction and individual approaches in the organization of the educational process.

Keywords: *Information society, computer and communication technologies, post-industrial society, principles of training, masters of technological education, approach.*

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Introduction

Domestic and foreign pedagogy and psychology have a significant experience in researching formation of different aspects of the future teacher personality, different areas of their training. In the pedagogy of higher school, various aspects of formation of the teacher's personality have been the subject of research by such scientists as Elkanov (1986), who researched the psychological and pedagogical qualities and the issue of self-formation of the teacher; Lisovska (2017), who researched personal qualities related to the creative potential of the teacher and psychologist. Systematic studies on the practical methods of demarcating creativity, talent and genius as psychological, professional and cultural phenomena are valuable for our article (Nerubasska & Maksymchuk, 2020a; Nerubasska et al., 2020); analysis of characteristics and criteria of professional readiness of teachers in Ukraine and the EU (Gerasymova et al., 2019; Melnyk et al., 2019; Sheremet, 2019). The studies of pedagogical innovation, futurology and prognostics, which involves the reinventory of competencies is also relevant and related to the research (Maksymchuk et al., 2020a, 2020b; Onishchuk et al., 2020; Palamarchuk et al., 2020 etc.).

Important for the study are works that reveal the content and structure of pedagogical activities, psychological patterns and features of the formation of the teacher's personality in the field of "Technology" (Derkach & Zazykin, 2003; Kobernyk, 2011, etc.).

A new look at the professional training of a higher school teacher, in particular, a teacher of general technical disciplines and methods of teaching technologies, the disclosure of their creative potential is based on the contemporary methodological approaches. Let's consider in more detail each of the indicated approaches.

Disclosure of creative potential of a high school teacher on the basis of contemporary methodological approaches

An effective solution to a set of psychological and pedagogical problems of forming the professional maturity of a high school teacher should be based on the idea of "acmeology", the task of which is that most people become creators of their lives, developing personal qualities, realizing personal potential (Derkach & Zazykin, 2003). According to Bereka (2008), the acmeological approach allowed to determine the essence of the main provisions, taking into account which the content of educational programs for professional training of masters will correspond to its purpose and tasks

Bereka (2008, p. 231):

1. Historical necessity, which determines what is preserved from the past today and is the basis for the development of science. Current achievements of science and technology are a means of interdependence of technologies of professional actions with the logic of professional thinking and oblige the teacher to improve the technology of classes. Today science is in theory, tomorrow – in practice.

2. Normalization of language communication between teacher and masters is determined by the skill of communication through knowledge and acquisition of knowledge; developing communication skills in a narrow circle and in front of the general public; formation of a lasting interest in the acquisition of knowledge, the desire to improve and deepen them for practical implementation in industrial relations between the leader and subordinates.

3. Conscious and reasonable use of information systems improves the training of specialists, transforms the educational process in the way the student goes from the reproductive level of knowledge acquisition to the creative independent level, helps to adapt in the information society.

4. Formation of professional-creative, personal-individual qualities of the master is caused by individualization of training, culture of educational activity, its independent spiritual force, the most important need of achievement of the purpose is carried out through training where activity of the person in the process of cognition is observed at each stage. Professional activity – conscious and outlined by a new theoretical and practical independence.

The axiological approach is a link between practical and abstract-theoretical approaches. Axiology is a philosophical doctrine about the nature of values, their hierarchy, structure, relationships. The foundations of the axiological approach in domestic pedagogy and psychology were laid by Ananiev (1968), etc. Problems of pedagogical axiology as a component of the philosophy of education were studied by Gershunsky (1998), etc. Value orientations in education, motivational and value attitude to cognitive activity have become the subject of research by Abulkhanova-Slavska (1991), Dodonov (1978), etc. Value approaches to education management and axiological priorities of its development strategy were developed by Karakovsky et al. (1996), etc. Axiological characteristics of pedagogical activity are revealed in the works of Wolfson (2005), etc.

The axiological approach allows us to consider education as a socio-pedagogical phenomenon that performs human functions: humanitarian, cultural, creative and socialization. Cultural and creative function ensures the

preservation, transmission, reproduction and development of culture through education, the orientation of education on the education of human culture. Socialization function – the assimilation and reproduction by an individual of social experience necessary for the normal painless entry of a person into society. The humanitarian function of education involves preservation and restoration of human ecology, physical and spiritual health, meaning of life, personal freedom, morality. This reveals a close relationship between axiological and anthropological approaches.

The anthropological approach is based on the ideas of philosophical anthropology, which is the doctrine of the nature (essence) of man, which is the starting point and the central subject of consideration. Man is a holistic system: organism, individual, personality, individuality, subject and object of socio-cultural processes.

Effective development of personality is impossible without real and ideal interaction with society, outside the culture of mankind. Culture is the content of human activity, not only affects man, but also depends on him. Some components of culture it consumes, protects, improves; others – rejects, destroys. The cultural approach to the training of a teacher of general technical disciplines and methods of teaching technology allows us to consider technological culture as part of the general culture of the teacher's personality. Culture is considered as a set of values, a way of their assimilation, experience of creative activity of people in its general historical forms. Professional and pedagogical training of students of educational and qualification level "master" with its purpose, content, strategy of professional training, its nature and forms of interaction establishes specific relations between the student and culture, in some way transforms the latter, and determines the student's activity.

Contemporary requirements for higher professional and pedagogical education necessitate the special organization of training of the future teacher of general technical disciplines and methods of teaching technologies with the use of means that provide a subjective position of its development. This presupposes the implementation of a personal-activity approach, which makes it possible to transfer pedagogical tasks into the personal meaning of the student's activity, is a unique feature, which is explained by the personalization of professional training, the inclusion of personal experience in the pedagogical interaction of teachers and students. Personality as a subject of activity was studied by Rubinstein, who noted the need for a subjective position of students: external conditions act through the mediation of internal, forming a single whole with them. Based on the principle of unity of consciousness and activity, Rubinstein argued that

human activity determines the formation of human consciousness, its psychological connections, processes and properties, which, while regulating human activity, are at the same time the only condition for their implementation (Rubinstein, 2002, p. 156).

The personal-activity approach in the system of higher pedagogical education requires a change of the dominant position of the teacher and the subordinate position of the student in the personal-equal position. Such transformation is connected with the change of roles and functions in the course of professional training and with the statement of the subject – the subject relations constructed on the basis of the principle of poly-subjective (dialogical) approach which demands application of system of forms of educational and professional cooperation, their certain sequence that takes into account the positive dynamics of students' own activity – from the maximum help of the teacher to full self-regulation in the process of professional training. Changing the paradigm of education becomes possible with a reflexive type of management of the educational process, the essential specificity of which is that the purpose of joint activities of teachers and students is to develop future professionals' ability to self-government (self-regulation, self-organization, self-control). The most effective reflexive management is carried out in the conditions of realization of the principle of the individual-creative approach which application stimulates the general and professional self-development of the future teacher. This approach involves taking into account the motivation of students, its dynamics in the process of training, learning their self-organization in approaching the end result.

The main purpose of the individual-creative approach is to create conditions for self-realization of the future teacher's personality, identification and development of their creative abilities, formation of their necessary competencies. Personally oriented content of technological education is aimed at the development of a holistic person: their natural features, strengths and abilities, social properties, the properties of the subject of technological culture. This development occurs during the pedagogical process, the essential characteristic of which is the integrity, the internal unity of its components.

The system-holistic approach is one of the fundamental ones in contemporary pedagogy. It is realized through theoretical comprehension, substantiation of integral systems and methods of their cognition, is used as a criterion of development of researched system objects. The research of Babansky (1984) and others is devoted to the problem of the integrity of the pedagogical process. A systematic approach to the objects of reality involves taking into account and use in the process of cognition and practical

activities of the laws and relationships inherent in the system. Integrity is a characteristic of a system that denotes qualities and properties that do not belong to its individual parts, but arise as a synthetic result of the interaction of these parts. Integrity is determined by the composition and internal nature of its parts, their hierarchy. Integrity can be considered as completeness, as a comprehensive coverage of all properties, parties, relationships of the object; in this sense it coincides somewhat with the notion of discreteness. Integrity is also interpreted as the internal conditionality of the object, which determines its specificity, uniqueness. In this sense, it approaches the concept of essence. The first value reflects the need to integrate the content of the studied disciplines, their interaction and complementarity; the second is the purposeful creation of an active educational environment and the integrated use of new forms, methods of organizing students' educational activities and managing their independent work. A systematic and holistic approach to the technological training of a teacher of general technical disciplines and methods of teaching technology allows to reveal the unity of its functional, value and activity aspects. The content of these aspects and their relationship contribute to the fullest realization of the integrative, creative, spiritual and physical essence of technology.

Let us dwell in more detail on the approaches, which largely explain the emergence of the competency paradigm and its specifics in technological education at this stage of development of higher education.

Theory of technocracy. In connection with the growing role of the technical intelligentsia in society as one of the brightest bearers of technological competence, it makes sense to consider the theory of technocracy (Galbraith, 1969; Veblen, 1984). Technocrats see the public interest in using technical advances to resolve the contradictions caused by scientific and technological progress. Under these conditions, the dominant role in the economy is played by large corporations, in which power belongs to the technocracy.

Qualitative changes took place in the 70's and 90's, when the unified information infrastructure began to take shape. Traditional mechanisms of political decision-making for ideological reasons are considered from the point of view of the theory of technocracy as the causes of incompetence and irresponsibility. In the system of priorities in making adequate decisions, the first place is given to expert consultants.

Technological determinism is considered in the concepts of industrial (Galbraith 1969), post-industrial (Bell, 2004; Fourastier, 1949), technotronic (Brzezinski, 1970), programmable, (Touraine, 1998), information society (Masuda, 1993).

At the present stage of development, the concepts of technological determinism go beyond the narrow confines of technicalism and seek to correlate the category of "technology" with the key concepts of philosophical reflection – "civilization", "culture", "progress", "values", "identification". Grant believes that the word "technology" means not so much machines and tools as the idea of the world that governs our perception of all that exists (Grant, 1983).

For us, these ideas are important in developing the content of the technological competence of the teacher with a focus on the idea of humanization of technology, which means: technologically competent teacher conducts their professional activity in a humane "technical" space, being its socially independent subject.

The concept of cultural backwardness. On the basis of the general methodological establishment of technological determinism Veblen developed the concept of cultural backwardness, in which the cultural-historical process is interpreted within the framework of the philosophy of technology (Veblen, 1984). The main provisions of the concept – the field of technology and culture are developing at different speeds. Adaptive (immaterial) culture is always ahead of material culture, which is due to the structure of the most adaptive culture, which is characterized by "natural conservatism".

The concept of the information society. The emergence of the information society is one of the signs of the transition of civilization into the noosphere. With the introduction of integrated communication networks, the possibilities of direct communication of individuals on a global scale are expanding. The introduction of computer and communication technologies in everyday life and in production has a great socio-economic impact on post-industrial society and causes such powerful social changes that it (society) becomes a completely new type – information society, based on the structure and dynamics of which lies the production of information, not material values, as it was before. Information in such a society becomes a social and productive value. Hence the new features of society are: a certain hierarchy of prestige, a specific type of education, information technology that provides a balance of dynamics and social statics, a fundamentally different management system, etc.

Educational challenges in the context of a postmodern vision

Before considering current methodological transformations in the professional training of masters in the context of interaction with the information environment, we must dwell on the key influences of

postmodernism, since it questioned the classical and contemporary concepts of education. This phenomenon (especially in countries with strong academic traditions) has replaced the education slogan "moving from traditional to the future" with another "then and there" (Bokova & Malakhova, 2019). Postmodernism managed to respond to global values, but also to leave the methodology and ideology of education in an open and uncertain state. That is, informational content, fundamental incompleteness, personal intentionality of education became evident in the era of postmodernism, but the methods and principles passing through the prism of postmodernism seem to be amorphous and extremely variable.

At its core, the educational context of postmodernism is non-constructive. It questions the scientific rational empirical model of education and it is prone to loyalty, multinationalism, the manifestation of previously hidden intentions of participants in the educational process (Campbell, 2018). Moreover, postmodernism criticizes the system of education scheme and blurs the boundaries between education, culture, politics and an individual. Thus, postmodernism challenges rational empiricism, which has always been the foundation of education. Instead, it offers not so much education as personal experience and social practice, which supposedly bring more benefits to a person who is in an uncertain globalized multimodal world.

Information technologies, the leap of which coincided with the end of the postmodern era, called on the subjects of the educational process not to assimilate, but to create and transform knowledge and experience. There is both public interest and technological opportunities for this. Wells states: "A large number of current IT advances are a direct result of the postmodern movement. At the same time, it can be argued that IT was a catalyst for the postmodern movement, in fact, stimulating its growth" (Wells, 1996). From this perspective, education is seen not as an educational activity, but as an intellectual process of reasoned dialogue in upholding the right to exist of neoliberal, irrational and marginal positions that were previously ignored.

In this context, education moved closer to sociology and psychology and offered a cascade of changes and proposals in the framework of adult education throughout life. At the same time, the institutionalization of education is considered a secondary task. Phenomena such as reflection, the transaction of cognitive actions and efforts, which are more congruently with global socioeconomic functions, have become important (Shotton, 2009). At the same time, in our opinion, institutionalized education is seen as only a separate option, a function of personal and group development and is

associated with such rather negative aspects as politicization, ideologization, isolation and control.

The personal irrational resource of postmodern education is still relevant, since it is an important tool of a person or community in the fight against material capital, established social forms and institutions that have a clearly defined statute, functions and prospects. Rikowski and McLaren generally use the "extreme-left" term "postmodernism of resistance," whose representatives believe that postmodernism is intended to complete (finalize) all open and socially engaged problems of the society (Rikowski & McLaren, 2002). Therefore, these authors point to the educational flaw of postmodernism, which is unable to solve any classical or modernist perspective due to its "sterility" and the absence of a development vector. However, we do not reject the merits of postmodernism in revising the planned, politically defined line of technological education and translating it into a personal-social plane: the reflection of the teacher and the student as introverted ways of acquiring knowledge, rejection of the vertical organization of the educational process, denial of the set of standard competencies defined in mini programs, etc.

Using the example of Great Britain as a country with strong social and educational traditions, Atkinson proves the usefulness of the "postmodern challenge": neither authority, nor certain models, nor proposed identities, nor linguistic styles can be acmeological peaks of society (Atkinson, 2000). Everything determines the context and the capabilities of each person in it. Psychology and sociology as sciences can roughly outline these possibilities, which are closer to human existence. Such ideas are easily supported by sociological research, monitoring of experimental conditions, contexts and educational tools. Thus, Craft described the experience of about 20 educators-innovators, whose main work attitude was the idea "To support children and youth in an increasingly chaotic and fragmented postmodern world, which requires increased personal flexibility and creativity" (Craft, 1997). The result of the study of experience was the creative need for a constant dialogue of the "multiple Ego" with other "Egos" that were suggested by the actual context. At the end of such an endless dialogue, many creative tools and innovative learning technologies can be produced.

In the postmodern era, among the issues of subjectivity of the educational process, there is an urgent need to reassess the role of the teacher (s), which is traditionally major. Despite the popular theories of an inspired leader or teacher as a carrier of a special pedagogical style, the issues of autonomy of learning, self-directed learning, distance smart learning, etc.,

come to the fore (Misdi et al., 2013). So far, the facilitative role of a mentor, moderator in decentralized learning, etc., remains a compromise option. Students come to the fore with their own self-guided educational trajectory. Although, in our opinion, such an approach reduces objective programmatic achievements, but it expands the immanent worldview results. More significant categories are potential, educational context, conditions that arise spontaneously. There are great capabilities to solve spontaneous theoretical and practical problems through the efforts of the group in the context of e-learning and relevant dialogue.

In the context of postmodern education in educational electronic (virtual) environments, the most important is the availability of technology for obtaining, and even better - the generation of knowledge. According to Blair, the electronic environment is the most natural for "culturally diverse students" (Blair, 1997). There are quasi-forming concepts of "multi-literacy", "multimedia environment" and which in "E-education" offer ample opportunities for the integration of theory and practice, text and visualization, sensory and rational. In fact, these concept-functions dominate the teacher's capabilities. The teacher is almost the only vanguard of anthropocentrism in teaching at colleges and universities, including as a generative and evaluative source in terms of a discursive attitude to the subject of study, regulation of nonlinear, multimedia and hypertext communication.

Naturally, student youth often outstrip teachers in the use of such communications, therefore it is reasonable that "Teachers who are not familiar with the electronic environment should be students in these conditions, which is an important chance not only to understand new technologies of teaching literacy and communication processes which their students will face in class" (Blair, 1997).

Thus, in the context of postmodern and contemporary methodological approaches to the professional training of specialists in the context of interaction with the information environment, teachers should be developed not in depth, but in breadth and, first of all, have general communicative, cross-cultural and electronic competencies.

In the end, we will note some new trends that began to appear after the fading of the postmodern deconstructive revolution, which can be considered a manifestation of methodological reductionism. For example, in Great Britain, professional education has become the subject of political initiatives, public discussions at institutions. The cultural component is decreasing, and the pressure of the authorities on education is growing (Wilkin, 1994). However, the deconstruction started by postmodernism, in

the center of which lies doubt, re-inventory, humanitarization of all methodological aspects, has already entered the controversy. This makes us hope that now we will have a new subject for educational and public open dialogue using the achievements of postmodernism both in technological education and in general.

Realization of the "value of time" as the main goal of the information society

The term "information society" appeared in the works of Masuda (1993), Toffler & Toffler (2008) and others in the 70 – 80's of XX century. The main purpose of the information society is the realization of the "value of time". The new society will operate on the basis of synergetic rationality, which will replace the principle of free competition of industrial society.

Some of the scientists, noting the characteristic features of this type of society, express concern about the socio-psychological consequences of the information revolution, since almost all the positive phenomena of the information society have negative sides. Scientists warn about the cult of information, which, if not taken under control, can be used to further concentrate the power of impending new, more sophisticated forms of manipulation, domination and violence over people. They warn that the idealization of the information society can be costly for humanity. It is especially detrimental to young people and their education. Today, teenagers receive a vast majority of information through electronic media, and it is dangerous to their physical and mental health, primarily because the quality of information leaves much to be desired: violence, pornography, dirty political intrigue, low-quality serials – the main content of television. The advent of computers only complicates the problem of a teenager's relationship with the media. At the same time, informational progress is too obvious to ignore.

Hence, higher pedagogical education faces an important socio-cultural and educational task – to form such a technologically competent teacher who can teach students to interact with the information environment. Technological education is designed to play the role of a socio-pedagogical regulator of human relations with electronic technology in the new society. Technological progress cannot be stopped, but it can and must be used for the benefit of man and in order to control it.

Concepts of industrial and post-industrial society. Industrial society is one of the main categories in which contemporary philosophers, sociologists, political scientists and economists try to find the tendencies and features of "developed" societies as opposed to "traditional" agrarian ones.

The theory of industrial society is based on the fact that radical socio-economic, political and socio-cultural changes in the process of social development arise as a result of the transformation of traditional societies into industrial ones. This transformation itself is the result of the industrial revolution and the associated rapid and large-scale invasion of technology in all spheres of society.

Inherent in traditional societies, rigid social barriers in the process of active social mobility of industrial society are destroyed, traditional hereditary privileges give way to equality of opportunity. In an industrial society, the role of specialists in the management of the economy and all spheres of public life is increasing. There is a separation of property from the management process, and real power is transferred to the "technostructure" – a specific social organization, which includes scientists, engineers and technicians, specialists in advertising, marketing, specialists in the field of public relations (Galbraith, 1969). In the 70s – 90s it was noted that the industrial society is in crisis, and humanity is moving towards a social structure, which is characterized by "a greater capacity for self-change than an industrial society" – towards a "post-industrial society".

"Information society" – a concept to denote the real stage of the civilization process (three-phase typology of social evolution):

1) traditional society based on agriculture – characterized by a conservative social structure, authoritarian forms of culture and syncretic style of thinking;

2) industrial society – creation of machine industry on the basis of new equipment and technology, lifestyle based on urbanization and standardization, construction of a new style of thinking characterized by rationalism and individualism, in the political sphere – the design of national liberal democracies;

3) post-industrial society – reorientation of the economy (from production – to service, development of "civilization of services"), the dominance of knowledge-intensive industries, a fundamentally new way of organizing the technological sphere, determined by creation of intellectual technologies, change of social structure of society. The phenomenon of property loses its criterion fundamentality (the conflict is not between labor and capital, but between incompetence and professionalism). The phenomenon of knowledge that underlies the new technological culture comes to the fore. The social role of the intelligentsia is growing, which, without being united organizationally, is the only collective subject of knowledge generation.

Synergetic approach to the problem of technological education of

teachers. It is a productive analysis of technological education of the teacher from the standpoint of synergetics – a post-neoclassical interdisciplinary direction of research of self-organization processes in systems of different nature: natural and artificial, physical and biological, ecological and social. At the same time, we do not consider synergetics and the approaches based on it as something completely new and different from the approaches that are called systemic, cybernetic, etc. Note that in terms of continuity, synergetics can be considered as the development of interdisciplinary ideas of a systems approach, and as the development of cybernetics, especially in those sections that concern the modeling of communication and self-organization using the principle of feedback (Batechko, 2016).

Synergetics can be considered in the perspective of systemic (post-classical) evolutionism. It borrows from the system approach the concept of openness, an open system, associated with the name of the founder of the general theory of systems Bertalanffy (1960) and introduced by him into the methodology of science.

This historical and methodological position is important for understanding the possibilities (and features) of a synergetic approach to social issues as an interdisciplinary field of knowledge, which focuses on the evolutionary behavior of open, far from equilibrium nonlinear systems that create the image of a nonlinear world. It is in the process of self-development, a world in which order and chaos are neighbors, interpenetrating and mutually transforming into each other.

This characteristic is fully consistent with the education system, in the depths of which technological competence of the teacher is formed. Let us try to further illustrate the synergetic principle on the example of the genesis of the concept of "technological competence", which is one of the main in our study. To do this, we must consider the symbiosis of two concepts – the socio-cultural concept of "open society" (Bergson, 1914) and the natural science concept of "open system" (Bertalanffy, 1960). At the heart of this symbiosis is a dialogical and communicative process of interdisciplinary understanding of the idea of development in contemporary civilization and culture. The main semantic difference of an open social system from a closed one is the ability to develop, self-development, and creative evolution.

The synergetic approach is implemented in a circular, cyclical relationship to these issues, which are not given from the beginning in the finished form as objects, but arise as a result of answers to questions that arise later. Figuratively speaking, the synergetic approach is the art of organizing the conditions for a productive dialogue "order – chaos", on the

verge of which there is a new meaning of the whole system. In other words, a synergetic approach is an intersubjective dialogue process that always has its own internal history, logic of reasoning, discourse.

Maslow notes that "high synergy is possessed by those societies whose social institutions are organized so as to overcome the polarity between selfishness and unselfishness, between self-interest and altruism, so that an individual, achieving one's selfish goals, receives a reward for oneself. If good is rewarded in a society, it is a society with high synergy". A society with high synergetic potential is a society whose members are open not only to the voice of the mind, but also to the voice of the heart, the voice of the feeling of love for one's neighbor Maslow calls this phenomenon social synergism (Maslow, 1999).

To understand the phenomenon of technological competence, a society with high synergetic potential can be considered an educational environment of a higher pedagogical educational institution. Through openness and self-organization, the higher educational institution is capable to prevent crisis development of pedagogical education in local space and on this basis to form in the experts various competences and technological, in particular:

Information approach. It is advisable to consider the problems of contemporary pedagogical education from the standpoint of an information approach (Hurevich, 2002; Ursul, 1995; Voronina, 1995). Analysis of the concepts that exist within this approach will make it possible to comprehend a number of information technologies, although their mass introduction into the educational process of higher education is a far from obvious benefit.

The emergence of information environments requires an understanding of the role of the phenomenon of virtual resources in the development of personality. In this regard, there is a problem of information security, because the process of computerization is associated with a set of negative consequences – computer crimes, electronic viruses, violations of information rights and freedoms, and so on. Hence the need for information technology that would ensure the preservation of mental health of users and their information security. However, information security is not limited to the technical side. It is much more difficult to create a favorable cultural and educational environment for the humanistic orientation of information processes. In a sense, all development initially exists in the form of the virtual, the reflection, only in the middle of the subject. This confirms the need for rapid study of the process of formation of reflection as the most important quality of personality in the process of interaction of the subject with real and virtual environments, which gives us reason to identify the

most important type of technological competence – information and reflection competence.

In this regard, a teacher of general technical disciplines and methods of teaching technologies should be competent in the study of the patterns and contradictions of information of society on a regional and global scale, in the development of socio-psychological aspects of information in society and education. He must be able to predict the main trends in the formation of the information society in combination with information security of human social development; be able to analyze the nature, place of information technology in society, their transformation into a priority human resource and a factor of development; to use scientific and information technologies for the purpose of modeling of social and pedagogical processes; must study and properly build the relationship between computer science and man, instill in students an information culture, prepare the younger generation for life in an information society that is increasingly human-oriented. Contribute to strengthening the ethical and humanistic aspect of the contemporary information society.

Such a wide range of issues must be considered in the new scientific field – pedagogical informatics. According to Ursul, pedagogical informatics is designed to study the process of interaction between informatics and education, to identify patterns and trends of this interaction, because with the transition of mankind in the XXI century to the post-industrial stage of its development there was a fundamentally new system of education (Ursul, 1995).

Its socio-cultural and psychological-pedagogical aspects play an important role in the computerization of contemporary teacher training. The idea of computerization as a process of technical mastery of the machine often leads to the manifestation of negative traits of thinking, in particular to reduce self-criticism, to ignore cognition and creativity, to "dehumanize" thinking. Thus, the personal aspects of scientific and cognitive activity are lost. Realizing the danger of the current situation in the contemporary information society, most scientists associate the solution of the problem with the development of a humanitarian scientific paradigm based on a competency-based approach. Today, the leader of scientific knowledge is a set of sciences focused on social problems, ecology, humanities. On this basis, many scholars consider the humanizing function of technological education: the problem of humanization and humanization of technical and technological training can be solved only on the basis of a holistic concept of socio-humanitarian education, the essence of which is that all higher education teacher training should permeate universal culture with the

opportunity to form a global planetary worldview. Motivational value orientations, ecological thinking, social responsibility, creative nature of activity, focus on self-actualization and individualization – the way in which not only humanitarian but also technological education of the XXI century will develop.

Technological approach. New approaches give birth to new technologies. Hence naturally arises a technological approach to pedagogical education, which provides flexible instrumental management of the educational process of higher education. Technological approach – the concept is quite broad; it combines several areas that have been developing intensively recently in higher school didactics: dialogue and modular learning (Shogan, 2016), contextual learning (Verbytsky, 2004), learning through solving educational problems (Slastyonin et al., 2002), innovative training (Pidkasisty, 1979; Podymova, 2012); problem-modular training (Pidkasisty, 1979), project training (Matyash, 2000), simulation and game modeling (Lebedeva, 2010; Shmakov, 2003), etc.

The emergence of new technologies in higher education indicates intensive integration processes in teacher education, as almost all technologies are based on several theoretical approaches. Originating in the depths of programmed learning, pedagogical technologies quickly found their place in the didactics of higher education, meeting the need for flexible response to processes in higher education and ensuring the most effective achievement of educational goals (Arkhangelsky, 1980; Talyzina, 1988, etc.). Since the main strategic direction in the development of education, most contemporary scientists consider personality-oriented learning that reflects the humanistic traditions of mankind, the main scientific and practical research is conducted in the direction of developing technologies of multilevel learning. Personality-oriented learning involves differentiation in the learning process and focus on the student's personality. In didactics it is accepted to consider as differentiated training if in its process individual differences of students are considered: level of the general development, culture in a certain branch; features of mental development of personality; features of character, temperament, etc.

Thus, contemporary higher pedagogical education should use scientific approaches to the education and training of the individual. These approaches, taking into account the current state of psychological and pedagogical theory of teacher training, constitute the theoretical and methodological basis for the formation of competencies of teachers of general technical disciplines and methods of teaching technology.

Principles of training of masters of technological education

The formation of the teacher is based on the principles of scientificity, continuity, systematicity, unity of theoretical and practical training, etc.

Scientific training of a teacher is a reflection in the content of psychological-pedagogical and special disciplines of current achievements of science, advanced pedagogical experience, new concepts of teaching, education.

The principle of continuity necessitates the construction of professional training of future teachers, which would provide a systematic study of pedagogical and special disciplines throughout all years of study.

The principle of unity of theoretical knowledge and practical skills must be implemented in the study of all blocks of disciplines, at all stages of learning: at the stage of accumulation of facts in the process of pedagogical and educational practices; comprehension of these facts in the process of theoretical classes in various disciplines; at the stage of studying didactics, theory and methods of teaching and education; at the stage of application of this knowledge, skills and abilities in the process of pedagogical practice; at the stage of studying the block of professionally-oriented disciplines and their application in pedagogical and technological practices. Assimilation of scientific theory is a necessary prerequisite for practice, which is designed not only to consolidate the acquired knowledge, but also is the initial basis for further understanding and assimilation of the theory. However, this is not the only importance of practice in the formation of the teacher, it significantly affects the motivation, decisively affecting the formation of motivational and value attitude to the acquisition of professionally significant knowledge and personality traits. That is, theoretical and practical readiness are so interconnected that they should become the general line in integral process of formation of professional maturity of masters of technological education.

In our opinion, the system-forming principles of training masters of technological education on the specifics of the implementation of its content in the educational process of higher education are manufacturability, evolution, fundamentality, variability, minimum sufficiency and integrativity. They should be given the role of an objective basis for the formation of professional training for a master of technological education.

The first two positions of the offered list, at first sight, quite obviously influence improvement of training of the expert of technological education.

The principle of technological effectiveness of education and training is based on the concept of technology as a combination of qualified skills, means, methods, relevant knowledge necessary to implement the desired transformations in information, in subjects, in people. We, like contemporary Ukrainian authors (Strelnikov, 2006), define the technology of teaching as a set of methods and techniques, forms of interconnected activities of teacher and student, which ensures the effectiveness of the didactic system and the achievement of learning goals. The implementation of this principle shows the understanding that the expected results in any field of activity can be achieved only if there is an adequate technology, which must be able to design and implement – only after mastering a certain technique.

The principle of evolution involves the use of training schemes using optimization of ways and means of teaching new areas of science and technology, which allow the traditional training program to painlessly remove obsolete objects, inferences, parameters, etc. This, of course, makes it possible to create conditions for the evolutionary development of the educational system, naturally ensures the continuity of experience in the development of the specialty.

Consideration of the issues of defining the design strategy and formation of professional training of the future specialist in the technique of engineering and technology requires the selection of the most important principles of *fundamentality and variability*. The reason for this is the natural need to reflect in the technological education of students a holistic diversity of the realities of the changing technosphere, where the key requirement is variability. The principle of variability orients each master of technological education to the development of their own projects, programs and strategies of pedagogical activity, as well as allows to create a holistic view of the opportunities for learning and professional development of the student.

The principle of fundamentality determines the basics of strategy and tactics of construction and operation of the studied educational system, the interdependence of its elements and place in the system of continuing education. The point is that university training, being the basis for further long-term work of a teacher of teaching methods of technology and general technical disciplines, allows them through periodic retraining and self-education to remain at the level of requirements that puts forward the level of science and technology in society.

In contrast, the requirement of fundamentality in addition to the discipline, or set of disciplines that underlie the study of subsequent courses, usually leads to their complication and expansion. In our opinion, this

approach does not meet the objectives of building a contemporary professional training master of technological education. Under its fundamentalization we will understand the provision of conditions for the development of future specialists of the theoretical foundations and the most general approaches of the studied subject disciplines, adapted to the needs of the specialty.

In the logical relationship with the considered didactic principles is the *principle of minimum sufficiency*, the content of which can be formulated as follows: The natural expansion of professional training leads to the necessary reduction of its traditional sections. This process should not conflict with the principles of scientificity and accessibility. Therefore, the minimum sufficiency of professional training should be understood as its sufficiency for the future specialist to master professional competencies. This approach allows to transfer the consideration of purely special issues in a variable module, which involves the implementation of a two-level construction of professional training master of technological education.

The above should in no way be considered as a reduction in the fundamentals of professional training under the pretext of its redundancy, unclaimed, as well as the need to expand the practical training of future teachers.

Concluding the discussion of the proposed system of principles that determine the methodology of formation of professional training of the master of technological education, we consider the importance of the *principle of integrativity.*

The practical implementation of specialist training inevitably faces problems of disciplinary differentiation of relevant educational programs. For a long time in the training of teachers of technological education was carried out professional training in the program of engineering universities. Exceeding the hours for studying the disciplines of the engineering component was the reason for the very low number of hours of disciplines of the psychological and pedagogical component, which led to the unpreparedness of future professionals for teaching within the university.

In order to improve the current situation, the introduction of integration processes in the theory of learning, which is a purposeful didactically sound integration of certain subjects into independent new pedagogical systems of special purpose, aimed at ensuring the integrity of knowledge and skills. This type of subject integration is implemented in the curricula for the training of future specialists in technological education at the Faculty of Vocational and Technological Education at Uman State Pedagogical University named after Pavel Tychyna.

The only logic of integration courses is the presence in each integration course of a content core, which allows to compress the educational material not through formal reduction, but by presenting it using a single theoretical model, united by a common ideology and specificity depending on the object, removal available repetitions and unnecessary details. It should be added that a significant reduction in the number of basic disciplines contributes to students' understanding of their purpose and the formation of a technological worldview.

Conclusions

Thus, the basis of professional training of teachers of general technical disciplines and methods of teaching technology in higher pedagogical educational institutions are contemporary educational paradigms (anthropological, humanistic, humanitarian, cultural), existing concepts (continuing professional education, personality-oriented academic) and contemporary approaches for the training of future teachers.

Despite the increased interest in the training of specialists, only some scientists addressed the problem of professional skills, and scientific work on the theoretical and methodological principles of training magisters in a particular specialty on the basis of a competency approach. Therefore, we consider it appropriate to consider the professional training of a teacher of general technical disciplines and methods of teaching technology from the standpoint of a competency-based approach.

Contemporary higher pedagogical education should use scientific approaches to the education and training of the individual (axiological, acmeological, synergetic, personal-activity, system-holistic etc.). These approaches, taking into account the current state of psychological and pedagogical theory of teacher training, constitute the theoretical and methodological basis for the formation of competencies in masters of technological education based on educational paradigms (anthropological, humanistic, humanities, cultural), existing concepts (continuing professional education, personality-oriented education).

The principles of preparation of masters of technological education are allocated: scientificity, systematicity, connection of training with life, conformity to nature, individualization, activity, clarity, continuity.

Specific principles of professional training of masters of technological education, which act in logical unity with general pedagogical (didactic), are the principles of manufacturability, evolution, fundamentality, variability, minimum sufficiency and integrativity. They should be given the role of an objective basis for the formation of professional training for a

master of technological education.

Analysis of the introduction of degree training in higher pedagogical educational institutions of Ukraine allows us to identify general approaches in the implementation of master's programs, in particular: their focus on the bachelor's degree; variability, flexibility and mobility of master's education, taking into account current socio-economic trends and regional needs; scientific and practical pedagogical direction and individual approaches in the organization of the educational process.

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References

Abulkhanova-Slavska, K. A. (1991). *Strategiya zhizni* [Strategy of life]. Mysl.

Ananiev, B. G. (1968). *Chelovek kak predmet poznaniya* [Man as a subject of knowledge]. Publishing house of Leningrad University.

Arkhangelsky, S. I. (1980). *Uchebnyy protsess v vysshey shkole, yego zakonomernyye osnovy i metody* [The educational process in higher education, its logical foundations and methods]: study guide. Vysshaya shkola.

Atkinson, E. (2000). The promise of uncertainty: education, postmodernism and the politics of possibility. *International Studies in Sociology of Education, 10*(1), 81-99. https://doi.org/10.1080/09620210000200050

Babansky, Y. K. (1984). *Pedagogika* [Pedagogy]. Pedagogy. https://www.klex.ru/hw9

Batechko, N. H. (2016). *Teoretyko-metodolohichni zasady pidhotovky vykladachiv vyshchoyi shkoly v umovakh mahistratury* [Theoretical-methodological principles of master's degrees in education] [Unpublished doctoral dissertation]. Borys Grinchenko Kyiv University. https://elibrary.kubg.edu.ua/id/eprint/14037/1/%D0%90%D0%B2%D1

%82%D0%BE%D1%80%D0%B5%D1%84%D0%B5%D1%80%D0%B0%D1%82%20%D0%91%D0%B0%D1%82%D0%B5%D1%87%D0%BA%D0%BE.pdf

Bell, D. (2004). *Gryadushcheye postindustrialnoye obshchestvo. Opyt sotsialnogo prognozirovaniya* [The Coming Post-Industrial Society. Experience of social forecasting]. Academia. https://platona.net/load/knigi_po_filosofii/sociologija/bell_d_grjadushhee_postindustrialnoe_obshhestvo/25-1-0-2349

Bereka, V. E. (2008). *Teoretyko-metodychni osnovy fakhovoyi pidhotovky mahistriv z menedzhmentu osvity* [Theoretical and methodical bases of professional preparation of masters on management of education]. [Doctoral dissertation, Institute of Adult Pedagogical Education of the Academy of Pedagogical Sciences of Ukraine]. Allbest.ru. https://otherreferats.allbest.ru/pedagogics/00590347_2.html

Bergson, A. (1914). *Sobraniye sochineniy v 5 tomakh* [The collection of works in 5 volumes]. M. I. Semenov. https://www.twirpx.com/file/1204167/

Bertalanffy, L. von. (1960). Principles and theory of growth. In W. W. Nowinski (Ed.), *Fundamental Aspects of Normal and Malignant Growth* (pp.137-259). Elsevier.

Blair, K. L. (1997). *Technology, teacher training, and postmodern literacies.* The 48th Annual Meeting of the Conference on College Composition and Communication, Phoenix, Arizona (21 pages). https://files.eric.ed.gov/fulltext/ED413597.pdf

Bokova, T. N., & Malakhova, V. G. (2019). Postmodernism As The Dominant Of Education Development In The Information Society. In & S. K. Lo (Ed.), Education Environment for the Information Age, vol 69. European Proceedings of Social and Behavioural Sciences (pp. 173-180). Future Academy. https://doi.org/10.15405/epsbs.2019.09.02.21

Brzezinski, Z. (1970). *Between Two Ages.* Penguin Books.

Campbell, M. (2018). Postmodernism and educational research. *Open Journal of Social Sciences, 6*(07), 67. https://doi.org/10.4236/jss.2018.67006

Craft, A. (1997). Identity and creativity: educating teachers for postmodernism?. *Teacher Development, 1*(1), 83-96. https://doi.org/10.1080/13664539700200001

Derkach, A. M., & Zazykin, V. (2003). *Akmeologiya* [Acmeology]: textbook. Piter. http://gpa.cfuv.ru/courses/os-ped-mast/Doc/Книги%20в%20формате%20(pdf)/Акмеология%20%20Под%20ред.%20Деркача%20А.А.pdf

Dodonov, B. I. (1978). *Emotsiya kak tsennost* [Emotion as value]. Politizdat. http://pedlib.ru/Books/6/0322/6_0322-1.shtml

Elkanov, S. B. (1986). *Professionalnoye samovospitaniye uchitelya* [Professional self-education of a teacher]. Prosveshcheniye.

Fourastier, J. (1949). *Le grand espoir du XXe siècle* [The Great Hope of the 20th Century]. Population.

Galbraith, J. (1969). *Novoye industrial'noye obshchestvo* [New Industrial Society]. Moscow. https://gtmarket.ru/library/basis/5021

Gerasymova, I., Maksymchuk, B., Bilozerova, M., Chernetska, Yu., Matviichuk, T., Solovyov, V., & Maksymchuk, I. (2019). Forming professional mobility in future agricultural specialists: the sociohistorical context. *Revista Romaneasca pentru Educatie Multidimensionala, 11*(4), 345-361. http://doi.org/10.18662/rrem/195

Gershunsky, B. S. (1998). *Obrazovatelno-pedagogicheskaya prognostika* [Educational and pedagogical prognostics]. Publishing House of Kyiv State University.

Grant, G. P. (1983). Philosophy and culture: Perspectives for the future. *XVIIth World Congress of Philosophy*, *1*, 173-182. Montreal. https://doi.org/10.5840/wcp171986125

Hurevych, R. S. (2002). *Innovatsiyno-telekomunikatsiyni tekhnolohiyi v navchalno-mu protsesi i naukovykh doslidzhennjakh* [Innovative telecommunication technologies in the educational process and research]. DOV Vinnytsia.

Karakovskiy, V. A., Novikova, L. I., & Selivanova, N. L. (1996). *Vospitaniye? Vospitaniye... Vospitaniye! Teoriya i praktika shkol'nykh vospitatelnykh system* [Education? Education ... Education! Theory and practice of school educational systems]. Novaya shkola.

Kobernyk, O. M. (2011). Teoretyko-metodolohichni zasady tekhnolohichnoyi ta profesiynoyi osvity [Theoretical and methodological principles of technological and professional education]. *Scientific notes (Series "Pedagogy"), 3,* 15-22. http://dspace.tnpu.edu.ua/bitstream/123456789/376/1/Kobernuk.pdf

Lebedeva, M. M. (2010). *Tekhnologiya vedeniya peregovorov* [Negotiation technology]. Aspect Press.

Lisovska, T. A. (2017). Psykholoho-pedahohichnyy analiz tvorchoyi spryamovanosti yak yakosti kreatyvnoyi osobystosti [Psychological and pedagogical analysis of creative orientation as a quality of creative personality]. *Scientific bulleten of the Nikolaev National University named after V.O. Sukhomlinsky (Series: Pedagogical sciences), 2,* 314-320. http://nbuv.gov.ua/UJRN/Nvmdup_2017_2_58

Maksymchuk, B., Gurevych, R., Matviichuk, T., Surovov, O., Stepanchenko, N., Opushko, N., Sitovskyi, A., Kosynskyi, E., Bogdanyuk, A., Vakoliuk, A., Solovyov, V., & Maksymchuk, I. (2020a). Training Future Teachers to Organize School Sport. *Revista Romaneasca pentru Educatie Multidimensionala*, *12*(4), 310-327. https://doi.org/10.18662/rrem/12.4/347

Maksymchuk, B., Matviichuk, T., Solovyov, V., Davydenko, H., Soichuk, R., Khurtenko, O., Groshovenko, O., Stepanchenko, N., Andriychuk, Y., Grygorenko, T., Duka, T., Pidlypniak, I., Gurevych, R., Kuzmenko, V., & Maksymchuk, I. (2020b). Developing Healthcare Competency in Future Teachers. *Revista Romaneasca pentru Educatie Multidimensionala*, *12*(3), 24-43. https://doi.org/10.18662/rrem/12.3/307

Maslow, A. G. (1999). *Novyye rubezhi chelovecheskoy prirody* [New frontiers of human nature. Moscow. http://psyberia.ru/book/maslow01.pdf

Masuda, I. (1993). *Kompyutopiya* [Computopia]. *Philosophical and sociological thought, 6,* 36-50. https://www.slideshare.net/MalahMariya/ss-12638694

Matyash, N. V. (2000). Genezis i sushchnost ponyatiya "Proyektnaya deyatelnost shkolnikov" [Genesis and essence of the concept of "Project activities of schoolchildren"]. *Sovershenstvovaniye tekhnologicheskogo obrazovaniya uchashchaysya molodyozhi* [Improvement of technological education of students]: materials of the international scientific-practical conference "Technological education of rural schoolchildren in contemporary conditions" (pp. 146-154). Armavir State Pedagogical Institute. https://infourok.ru/matyash-n-v-psihologiya-proektnoy-deyatelnosti-shkolnikov-v-usloviyah-tehnologicheskogo-obrazovaniya-2969382.html

Melnyk, N., Bidyuk, N., Kalenskyi, A., Maksymchuk. B., Bakhmat, N., Matviienko, O., Matviichuk, T., Solovyov, V., Golub, N., & Maksymchuk, I. (2019). Modely y orhanyzatsyone osobyne profesyonalne obuke vaspytacha u pojedynym zemљama Evropske Unyje y u Ukrajyny [Models and organizational characteristics of preschool teachers' professional training in some EU countries and Ukraine]. *Zbornik Instituta za pedagoska istrazivanja* [Journal of Institute for Educational Research]*, 51*(1), 46–93. https://doi.org/10.2298/ZIPI1901046M

Misdi, M., Hartini, N., Farijanti, D., & Wirabhakti, A. (2013). Teacher-centred and teacher controlled learning: A postmodernism perspective. *Journal of English Language and Learning, 1*(1), 73-78. https://www.neliti.com/publications/61010/teacher-centred-and-teacher-controlled-learning-a-postmodernism-perspective

Nerubasska, A., & Maksymchuk, B. (2020). The Demarkation of Creativity, Talent and Genius in Humans: a Systemic Aspect. *Postmodern Openings, 11*(2), 240-255. https://doi.org/10.18662/po/11.2/172

Nerubasska, A., Palshkov, K., & Maksymchuk, B. (2020). A Systemic Philosophical Analysis of the Contemporary Society and the Human: New Potential. *Postmodern Openings*, *11*(4), 275-292. https://doi.org/10.18662/po/11.4/235

Onishchuk, I., Ikonnikova, M., Antonenko, T., Kharchenko, I., Shestakova, S., Kuzmenko, N., & Maksymchuk, B. (2020). Characteristics of Foreign Language Education in Foreign Countries and Ways of Applying Foreign Experience in Pedagogical Universities of Ukraine. *Revista Romaneasca pentru*

Educatie Multidimensionala, *12*(3), 44-65. https://doi.org/10.18662/rrem/12.3/308

Palamarchuk, O., Gurevych, R., Maksymchuk, B., Gerasymova, I., Fushtey, O., Logutina, N., Kalashnik, N., Kylivnyk, A., Haba, I., Matviichuk, T., Solovyov, V., & Maksymchuk, I. (2020). Studying Innovation as the Factor in Professional Self-Development of Specialists in Physical Education and Sport. *Revista Romaneasca pentru Educatie Multidimensionala*, *12*(4), 118-136. https://doi.org/10.18662/rrem/12.4/337

Pidkasisty, P. I. (1979). Sushchnost samostoyatelnoy raboty studentov i psikhologo-didakticheskiye osnovy yeye klassifikatsii [The essence of students' independent work and psychological and didactic foundations of its classification]. In P. I. Pidkasisty, *Problemy aktivizatsii samostoyatelnoy raboty studentov* [Problems of activating students' independent work] (pp. 23-34). Perm University Publishing House.

Podymova, L. A. (2012). Stan ta perspektyvy rozvytku innovatsiynykh protsesiv i natsionalnoyi innovatsiynoyi systemy v Ukrayini [Status and prospects of development of innovation processes and national innovation system in Ukraine]. *Bulletin of Chernihiv State Technological University. Series: Economic Sciences, 4,* 58-64. http://nbuv.gov.ua/UJRN/Vcndtue_2012_4_11

Rikowski, G., & McLaren, P. (2002). Postmodernism in educational theory. In D. Hill, P. McLaren, M. Cole, G. Rikowski (Eds.), *Marxism against postmodernism in educational theory* (pp. 3-13). Lexington Books. https://www.researchgate.net/publication/316735694_Postmodernism_in_Educational_Theory

Rubinstein, S. L. (2002). *Osnovy obshchey psikhologii* [Fundamentals of General Psychology]. (vol. 2). Pedagogy. http://yanko.lib.ru/books/psycho/rubinshteyn=osnovu_obzhey_psc.pdf

Sheremet, M., Leniv, Z., Loboda, V., & Maksymchuk B. (2019). The development level of smart information criterion for specialists' readiness for inclusion implementation in education. *Information Technologies and Learning Tools*, *72*, 273-285. https://journal.iitta.gov.ua/index.php/itlt/article/view/2561

Shmakov, S. A. (2003). *Igry, razvivayushchiye psikhicheskiye kachestva lichnosti shkol'nika* [Games that develop the mental qualities of the pupil's personality]. CGL.

Shogan, V. V. (2016). *Metodika prepodavaniya istorii v shkole* [Methods of teaching history at school]. Phoenix.

Shotton, P. (2009). Transactional analysis training, postmodernism, and education. *Transactional Analysis Journal, 39*(4), 293-297. https://doi.org/10.1177/036215370903900404

Slastyonin, V. A., Isayev, I. F, Mishchenko, & A. I., Shiyanov, E. N. (2002). *Pedaghoghika* [Pedagogy]. Shkolnaya pressa.

Strelnikov, V. Y. (2006). *Proektuvannya profesiyno-oriyentovanoyi dydaktychnoyi systemy pidhotovky bakalavriv ekonomiky* [Designing of professionally-oriented didactic system of preparation of bachelors of economics]. RVC PUSKU.

Talyzina, N. F. (1988). *Formirovaniye poznavatelnoy deyatelnosti mladshikh shkolnikov* [Formation of cognitive activity of younger pupils]: a book for teachers. Prosveshcheniye. https://www.studmed.ru/view/talyzina-nf-formirovanie-poznavatelnoy-deyatelnosti-mladshih-shkolnikov_482223db4dd.html

Toffler, E., & Toffler H. (2008). *Revolyutsionnoye bogatstvo: Kak ono budet sozdano i kak ono izmenit nashu zhizn* [Revolutionary wealth: How it will be created and how it will change our lives]. ACT.

Touraine, A. (1998). *Vozvrashcheniye cheloveka deystvuyushchego. Ocherk sotsiologii* [Return of the Acting Man. Essay on Sociology]. Nauchnyy mir. https://socioline.ru/files/5/39/alain_touraine.pdf

Ursul, A. D. (1995). *Problemy informatsii v sovremennoy nauke. Filosofskiye ocherki* [Information problems in contemporary science. Philosophical essays]. Nauka.

Veblen, T. (1984). *Teoriya prazdnogo klassa* [Leisure Class Theory]. Moscow. http://www.library.fa.ru/files/veblen.pdf

Verbitsky, A. A. (2004). *Kompetentnostnyy podkhod i teoriya kontekstnogo obucheniya* [Competence-based approach and the theory of contextual learning]. Research Center for the Problems of the Quality of Training of Specialists. http://fgosvo.ru/uploadfiles/npo/20120326010135.pdf

Voronina, T. P. (1995). *Informatsionnoye obshchestvo: sushchnost, cherty, problemy* [Information society: essence, features, problems]. Central Aerohydrodynamic Institute.

Wells, J. D. (1996). Postmodernism and information technology: Philosophical perspectives and pragmatic implications. In J. Carey (Ed.), *Proceedings of the Americas Conference on Information Systems* (pp. 602-604). ArizonaState University. https://aisel.aisnet.org/cgi/viewcontent.cgi?article=1230&context=amcis1996

Wilkin, M. (1994). Initial training as a case of postmodern development: some implications for mentoring. In H. Hagger, M. D. Mcintyre (Eds.), *Mentoring: perspectives on school-based teacher education* (pp. 37-53). Routledge. https://doi.org/10.4324/9780203724903

Wolfson, B. L. (2005). Obrazovaniye na postsovetstkom prostranstve: integratsiya i dezintegratsiya [Education in the post-Soviet space: integration and disintegration]. *Pedagogy, 8,* 3-15. https://portalus.ru/modules/shkola/rus_readme.php?subaction=showfull&id=1193919502&archive=1196814847&start_from=&ucat=&