



Intellectual Resource for Professional Culture Formation of a High School Student - Future Specialist for Modern Production

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ABSTRACT

The relevance of the study is reasoned by the rapid changing of requirements of society and labor market to the professional culture of personality - A future specialist as the actor of active lifestyle, competent, creative, intellectually developed professional. To achieve these requirements an important role should be given to the intellectual resources in the process of formation of university students' professional culture: Knowledge; competence; personal qualities, advanced requirements of the labor market; critical thinking; ability to formulate the problem, propose a hypothesis to solve problems, to carry out generalizations and to formulate reasoned conclusions, to apply the results obtained to solve emerging problems, etc. Therefore this paper is aimed at the scientific justification of the structure and content of the intellectual resources in the formation of high school students' professional culture and the development of practically-oriented algorithms for their implementation. The leading research method is the method of modeling of the structure and content of intellectual resource in the process of university students' professional culture formation. The article reveals theoretical and methodological foundations of cultural competence approach to the design and implementation of the structure and content of an intellectual resource in the process of university students' professional culture formation ([1] Concept - explication of notions, the evolution of scientific approaches; [2] the structure and content of the professional culture - innovation discourse of the notion, culture - forming content, technology; [3] the structure and content of the intellectual resources of the professional culture - categories, objectives, content, criteria). Paper submissions are recommended for managers and high school teachers, students of high professional education staff's qualification development and retraining centers, young scientists, post-graduates and undergraduates.

Keywords: Intelligence, Intellectual Resources, Professional Culture, Competencies

JEL Classifications: A12, A20, H52, I23

1. INTRODUCTION

1.1. The Relevance of the Study

The need to address the problem of a specialist's professional culture formation is caused by new regularities of socio-economic, political, scientific – technical and moral order and the retardation of higher education system form reforming of economy and other spheres of public life. With all the undeniable achievements in the development of higher education institutions, the quality of specialists' training does not fully meet the modern requirements

of the labor market (Aleksandrov et al., 2015). This is evidenced by the fact that with one of the world's largest Corps of Engineers, we significantly are far behind in product's quality, on average social labor of the highest level achieved in the world (Khairullina et al., 2016; Masalimova and Sabirova, 2014; 2015; Zaripova et al., 2014; Masalimova and Nigmatov, 2015). This is largely due to the level of specialists' professional culture. There is a paradoxical situation when we have an excess of specialists with diplomas of higher education, but suffer from the lack of qualified personnel, possessing professional culture's competencies that allows

them quickly to solve complicated modern problems. Updating of the system of higher professional education currently takes place in many areas. However, it often presented by individual modifications and is not systemic, holistic in nature (Ibragimov et al., 2015; Shaidullina et al., 2015a; 2015b; Malysheva et al., 2016; Irismetov et al., 2013). And in fact, any transformative and creative activities should be based on scientifically justified ideas, approaches, concepts, which have long-term-oriented use of intellectual resources of existing systems and restoring the unity of the educational and material - technical potentials.

1.2. Literature Review

Professional culture in the scientific literature (Bibler, 1990; Zapesotsky, 2002; Stepin, 1999; Mishchenko et al., 2014; Kupriyanov et al., 2015) is traditionally defined as the characteristic of the expert's competence level, his attitude to labor and to himself as the actor of labor. In this characteristic the creation of professional identity's process dominates according to the culture image and likeness existing in real historical time. Modern society in terms of its development can be referred to the post-industrial stage, accompanied by the development of information technology, multimedia reflection of real and virtual reality, widespread of knowledge-based products: "Know-how," patents, R and D and others (Hamel, 2001). The results show that these trends in one decade of XXI century radically changed the status, role and prestige of the professional culture of a specialist – the high school graduate. Since that time, the prerequisites are defined of public recognition of the personality's professional culture, its leading role in the formation of professionals of the new generation, necessary for modern spheres of labor, understanding that it fulfills the backbone functions as a source of new knowledge and quality human resources, the most important element of the innovative potential of society, support database of national information systems in conjunction with the global systems for receiving, storing, transmission and reproduction of knowledge. Under the influence of these trends, the semantic content of the notion is modified, acquiring modern explicated discourse. The training process of a new generation professionals capable of not only innovative production tasks' solving at a high level of intelligence, but also to interact with different cultures' entities on the basis of formed competencies of intercultural communication is also subjected to cardinal modifications. Simultaneously, in the public mind a "reset" of ideas in terms of socio - professional attitudes, cultural and moral values of students - future specialists which influence mental attitudes in society, the level of culture of interethnic relations, the direction of youth social and professional contacts take place. It is well known that the majority of students are young people aged 17-21 years. This is the stage of adolescence's finishing and early adulthood's beginning. Theory and practice of psychology - pedagogical science shows that the students' characteristics of this age group is the time mismatching of the physical, social and intellectual development. Hence there are the difficulties in determining of value orientations, educational priorities and contradictory behavior. The process of knowledge's and professional skills' mastering is not so significant for students as the search for personal identity, rethinking of the profession's choice, an unconscious choice of intellectual competencies, cultural orientations and cross-cultural communication. Taking

into account the established trends, another important circumstance should be taken into account too – the channel of professional training to date reproduces its old base - specialized knowledge. And modern approaches to the training of specialists of new generation, established in the course of the study, are based not so much on cognitive abilities, but rather on the intellectual resources of the professional culture, recognized by leading experts of the post-industrial economy (Hamel, 2001) as the main condition of development, competitiveness, efficiency and "total quality" of highly intelligent products. The orientation of professional culture formation process of high school students – future specialists of a new generation on the intensification of its intellectual resource defines the need to solve a complex of tasks:

- The development of conceptual ideas of cultural competence approach to the structure's and content's projecting and implementation of professional culture's intellectual resources of university students - future specialists of the new generation;
- Correction of a specialist's professional culture model taking into account the specific of culture-forming content of intellectual resource;
- The structure's and content's correction of the professional culture's intellectual resource of a high school student – specialist of the new generation.

2. METHODOLOGICAL FRAMEWORK

2.1. Explicated Discourse of the Core Concepts

2.1.1. Professional culture

Based on the current state of knowledge of the phenomenon of culture, alternative positions in the solution of this problem, in the course of this study, an attempt was made to determine the classification of scientific approaches to the development of definitions of professional culture, its semantic content, corresponding to the trends of post-industrial society. Analysis of contemporary theories of culture, conducted during the study showed that initially all the processes taking place in society, all social phenomena, the very sociality in these theories related to the world of culture. These principles stated axiological concept of culture, popular in the 60s of the twentieth century: The culture is a combination of material and spiritual values created by mankind (Mezhuev, 2013). Weak heuristic assets of the approach (lack of criteria and therefore a significant share of subjectivity in the distinguishing of values and non-values, weak development of the concept of "value," the inference of a man beyond the study as direct creator of values) led to the creation of new definitions of culture within the framework of philosophy. A creative - activities concept is allocated (Bibler, 1990), in which the formation and development of culture is made dependent on the individual, his or her creative activities. To the culture the human experience of existence and development of the world in ways of perception, thinking, feelings and actions, as well as in the form of knowledge, values, methods and evaluation criteria, standards, purposes and meanings, storing and reproducing the experience of spiritual and practical activities were referred. Education as an element of culture in this concept is presented as "its alive interpreter and translator" (Zapesotsky, 2002), solving value and activities

tasks that correspond to the needs of society. Priority values of modern post-industrial society: Information, competence, intelligence (Kuznetsov, 2003). They adjust the targets of the formation process of a specialist's professional culture from the orientation on the old base – students' development of cognitive abilities to self-reproduction of intellectual resources of the individual's professional culture in creative activities. Indicators of student's professional culture formation are: The presence, depth and breadth of knowledge; substantiality and development of the spiritual needs; the system of value orientations and social norms in different fields; ideals, the degree of involvement of the student in creative educational, scientific - research, volunteer and other activities. The study results refer the contents of the concept of professional culture of high school students - A new generation's future specialists to the historically determined level of development of the intellectual resource of creative powers and abilities of the individual, expressed in ways of life and activities, in created by them material and spiritual values, which correspond to the requirements of the time.

2.1.2. Intellectual resources of the professional culture formation of the student individual

In the process of the conducted research a set of sustainable knowledge-based competencies, information, valuable orientations, norms, rules, creative technologies, etc. and other indicators of professional culture is established, focused on the development of mental abilities of students, current, prospective and reflective nature to take, to recycle, to use, reproduce and transform the received information. The essential characteristics of the intellectual resource of the professional culture are manifested in productive, operational, heuristic and synergistic levels (Kirsanov, 2005).

Productive level is characterized by underdeveloped knowledge and skills to identify and creatively use the techniques of mental activities. When solving tasks the regulation of mental activities is carried out by "sample," without the reflexive reflection in the personal mind of the student.

The operational level is characterized by conscious skills in tasks solving to base on methods of formal logic thinking: Analysis, synthesis, comparison, proof and refutation. Possession of these techniques defines a logical structure of professional culture of future specialist and acts as an obligatory stage in the development of creative thinking.

Heuristic level is characterized by integrity, sequence organization of the search process, the knowledge of not only the formal logical operations of thinking, but using them together as search strategies of tasks' solving. A new level of awareness and self-regulation of mental activities is based on a developed ability to widen the search, constantly to keep under review the target attitude and arbitrarily make a heuristic program of mental actions, to exercise step-by-step self-control and correction of the thinking search.

Synergy level: Regulation of mental activities occurs as a conscious application of reflective thinking. Synergetic mechanisms of reflection as a method of cognition are the techniques of

broad orientation in the content of the research problem; a comprehensive study of the self-transformation of the subject, of the object; varying with the characteristics of self-organization of the subject, the object, in order to identify the most essential of them; establishment of mobile interconnection of the parties and properties in the self-transformation of the subject, the object (Knyazev, 1993; Kuznetsov, 2003).

2.2. An Alternative Approach to the Professional Culture

The originality of the approach is in cluster ideas of transformation of traditional industrial corporations: The creation of creative centers, production structures, "growing" of creative leaders. All the activities of a specific cluster is concentrated around individuals, capable to produce new ideas. One of the first who began to develop the idea of production structures' clustering were post-industrial U.S. corporations (Microsoft, Metromedia, Dell, Intel, Oracle, Viacon, New World Communication). Managers of these firms predicted that leadership, capable of making intellectual property of a high level, is able to maintain the competitiveness of corporations in the "new economy" conditions and to ensure their rapid transformation into the creative ones, meeting the requirements of the XXI century. The main functions of creative clusters as a prototype for the future corporations of XXI century:

- The formation of the personnel's readiness to innovations' introduction;
- Disclosure of creative potential of each employee and ability to creative activities;
- Establishing of horizontal communications between individuals, creative teams in addressing common strategic issues;
- Finding of the most effective ways to invest in human for maximum performance (teaching, training, retraining, psychological mobilization);
- "Growing" of leaders and organizers of technological breakthroughs.

3. RESULTS

3.1. Conceptual Ideas of Cultural Competence Approach to the Intellectual Resources' Projecting and Implementation in the Formation of High School Student's Professional Culture

A key definition in the formation process of a student's professional culture is intellectual resource. In the course of the study, this phenomenon is considered as a combination of strong and informed knowledge of the fundamentals of science: Socio – humanitarian, natural – scientific, general professional and special cycles; intellectual skills; formed competencies of culture of mental work: Competencies of business planning, implementation of self-checking of its quality, independent producing and self-transformation of information from a variety of sources and resources that are realized in educational activities in accordance with the personal attitude of the student to self-organization and self-transformation. Indicators of expression of the professional culture's intellectual resource are established: The quality of social - humanitarian and natural - science, general professional, special knowledge connected with the experience of the individual:

- Modern knowledge and depth in mastering a particular profession; philosophical, political, historical, literary, linguistic, psychological, educational, legal, artistic and creative, etc. basic knowledge. Their consistency, high level of generalization that meets the demands of professional and personal culture, socio – professional competence;
- The need for communication, knowledge, self-transformation, self-organization, self-determination, self-realization, understanding of the meaning of life and self-worth of work;
- The ability to synthesize something new, to generate ideas and use unconventional ways of activities, to the transfer of knowledge and ways of actions into new unusual situations in the field of professional, socio-cultural, family and everyday life;
- Value orientations (general world-outlook, professional – technical, inventive, creative), norms, ideals, traditions, values, verbally expressed judgments, opinions of students, behavioral manifestations in the course of working on research projects.

The study established that the orientation of formation process of student's professional culture on culture-competence approach determined the necessity to solve a complex of tasks:

- Correction of a specialist's model taking into account new requirements to the harmonization of qualifications and competences based on the principles of culture-competence approach;
- The use of the federal state educational standards of high professional education regulations on the requirements for the projection and implementation of common cultural and professional competences in the model of the specialist;
- Updating of educational curricula by using the content of culture-forming training modules;
- Development and implementation of innovative technologies, reflecting the essence of creativity, research, self-organizing culture-forming activities of students;
- The definition of the evaluation criteria for mastered by students of culture-forming knowledge (structure, completeness, stability, consistency, integrity), culture-forming competencies (cultural self-identification, manipulation of knowledge, the choice of value alternatives, willingness to change cultural priorities, creativity);
- Updating of scientific and methodological providing of formation process of university students' professional culture through the implementation of an intellectual resource of culture-forming training modules.

3.2. Essential Characteristics of the Intellectual Resource's Algorithm of Culture Forming Training Module

In the research process on the example of organizational and methodical structure of culture-forming learning module the intellectual resource of the formation process of professional culture of a student – future specialist is analyzed. This structure includes reduced kinds of training activities of teachers and students based on the rules-regulations of the target, organizational-methodical, didactic, content and procedural-technological components of culture-forming training modules.

- Target components – structure and content of training – informative activities kinds, developing culture-forming competence is scientifically justified; content of analysis goals of culture-forming values necessary for all subsequent modules; motivational characteristics of objectives is established; the relationship of training goals with educational needs of all subsequent sections of this module, other academic disciplines, the relationship of educational – cognitive activities needs with the characteristics of the model of professional activity of the student are established.
- The content of education includes: (1) Content of basic concepts, categories, the provisions (principles, regularities, forms), content of culture-forming values, descriptions' schemes of major propositions, concepts, the sequence of learning content; (2) adaptive mechanisms of culture-forming values, attitudes, status roles of professional ideals of student through the content of the studied material (scheme of activities indicative framework): Learning objectives (outcomes and outputs) and their characteristics; general description of the nature of culture-forming values; learning objectives (outcomes and outputs) and their characteristics; general description of the nature of culture-forming values; characterization of initial educational material needed for a deeper awareness of the problem of professional culture's formation; the composition and the order of operations (algorithm); means of action (theoretical and practical); means and methods of self-monitoring and self-correction of the course and result of action (theoretical and practical criteria); the general scheme of action - instructions and guidelines presented in the form of an integrated system; standard of the action on the basis of the scheme requirements
- Learning tasks with standard solutions for organization and management of the assimilation of training content at all stages of training: Theoretical tasks – problems for formation of cognitive interest to culture-forming values, status roles and professional ideals; tasks that form the understanding (tasks for the correction of the initial level of the underlying knowledge, for rationale and conclusion of algorithms' schemes on the basis of the training material; research tasks for independent study of the material; tasks to prepare for the real professionally significant tasks' solving (tasks - models, situational tasks, task trainers, tasks - schemes); educational – cognitive tasks; tasks for collective discussion and solving (task-slides)
- System tasks-exercises to implement culture-forming values, attitudes, status roles, professional ideals: Tasks of different types with complete, incomplete, redundant and inconsistent conditions for the formation of critical thinking; tasks on the ability to justify concepts, basic provisions, processes and phenomena for the formation of theoretical thinking; the tasks of different types: Typical, atypical, on the differentiation of the phenomena and their essence to form the expediency of actions; tasks that require written or oral explanations for the formation of conscious action; the tasks with confusing actions for building of sustainability of the action; tasks on attention, forming skills of self-control; business game – tasks on status – role professional communication, etc.
- Preparation of initial level of competence: The preparation of objectives and plan of work, self-study, diagrams of the

prescribed actions, literature, tasks for self-examination and actions' correction; development of tasks-models for development of schemes-provisions, the deployed tasks for self-examination and self-education; preparation of materials for self-study and self-examination, including didactic means of control and self-control of self-training

- Organization of independent work of students in the classroom is represented by a wide range of teaching, organizational - methodical and control - measuring materials to evaluate the significance of established targets for improving of the quality of professional training of university students - the future experts. The rating of significance of the established parameters is presented in the following sequence:
 - Means of the educational materials' learning and self-study (scheme-regulations and system of training tasks of research character) – 77.8% of students assess this indicator as positive;
 - Means of revitalizing and fixing of the individual activities in the process of collective forms of tasks' solving – 78% of positive ratings;
 - Schemes of partnership of students and teachers as well as students with each other – 75% positive ratings;
 - Special test and diagnostic tasks with standard solutions for self-test and mutual verification of students in all types of target activities – 75% of positive ratings;
 - Technical means to ensure control and self-control of culture forming activities for each student - 73.5% of positive ratings;
 - Special methodical support students books for independent work of students in the self- study and the classroom, including elements and tasks for the development of specific culture-forming features of students' work – slightly more than half of students (54%) consider this indicator as effective.

4. DISCUSSIONS

The results of the study attribute the problem of this study to priority educational strategies to date, allowing cardinaly modify the content of professional training of future specialist, demanded by the modern labor market, to rethink the norms and values of the professional culture which are necessary for the student's self-identification in a future life activities.

Expert evaluation of the results of students' culture-forming activities participating in a pilot study, confirms a significant increase in knowledge of the science fundamentals in socio – humanitarian, natural – scientific, general-professional and special cycles; intellectual abilities and skills; formed competencies of the culture of mental labor: Competences of activities' planning, the implementation of self-control of its quality, independent obtaining and self-transformation of information from a variety of sources and resources, realized in educational activities in accordance with the personal position of the student to self-transformation, to self-organization, the degree of involvement in modifying educational - cognitive and socio - professional activities.

5. CONCLUSION

This study confirms the theoretical and practical significance of the research problem in the training of specialist of new generation with qualitatively new level of professional culture that meets the changing needs of the labor market. On the basis of theoretical and methodological provisions of training of specialists demanded by the modern labor market, conceptual ideas cultural-competence approach are developed to implement the intelligent resource of a high school student's professional culture formation (objectives, categories, evolution of scientific approaches), the structure and content of the intellectual resource of the formation process of university students' professional culture are revealed, the structure, contents and criteria of practice-oriented algorithm to implement them are developed. The paper presents the results of experimental work, confirming the efficiency of the algorithm implementation of an intellectual resource in the formation process of professional culture of a student – future specialist. The listed essential characteristics for the formation of a specialist's professional culture are generalized and integrative in nature. They are organically interconnected, organically interpenetrate, enrich each other and the methodology of the educational process of modern university, contribute to the development of the intellectual potential of students – future specialists and determine the place and role of professional culture in the structure of the updated values of XXI century.

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