




Sustainable Development of the National Education System of Russia on the Basis of Acmeological Laws of Fundamental Education

Nina V. Kuzmina¹^a, Lyudmila E. Pautova²^b and Evgeniya N. Zharinova³^c

¹*Kabardino-Balkar State University named after H. M. Berbekov, Nalchik, Russia*

²*Federal State Research Institution All-Russia Scientific and Research Institute for Irrigation and Farming Water Supply Systems «Raduga», Kolomna, Russia*

³*Saint-Petersburg State University of Veterinary Medicine, Saint-Petersburg, Russia*

Keywords: Development Strategy, National Education System, Acmeological Laws, Productivity, Education Sustainability.


Abstract: The purpose of the study is to determine the acmeological laws of productivity and substantiate the need for their implementation in the national education system. In this study, a theoretical-historical, methodological and system-logical analysis of acmeological research on the problems of productivity of specialists from different education systems, the accumulated experience of teachers-acmeologists from different regions of the Russian Federation is carried out. In particular, the results of the study and substantiation of acmeological laws in the formation of a productive national education system are presented in detail. Their characteristics and the main contradictions in their implementation at different levels of education, including in different author systems of the activities of education specialists, are revealed. The results of the presented research can be applied 1) in the system of higher, secondary, and additional vocational education in teaching the peaks of productivity and professionalism of all types of creative activity; 2) in the formation of a system of social and economic, psychological, acmeological knowledge aimed at the formation of professional competencies and the achievement of highly productive results in educational activities; 3) in the development of national programs for the development of education in the Russian Federation at different levels of government.


1 INTRODUCTION


The need to achieve sustainability and a given level of quality of the national education system is determined in strategic regulations at the federal level:

- The concept for the development of continuing education for adults in the Russian Federation for the period up to 2025.
- Decree of the President of the Russian Federation of May 7, 2012, No. 597 "On measures for the implementation of state social policy".
- Decree of the President of the Russian Federation of May 7, 2012, No. 599 "On measures to implement state policy in the area of education and science".

Based on the selected provisions, a significant role in the formation of a productive national education system (hereinafter referred to as NES) in Russia is played not only by the theoretical provisions of acmeology, but also developed on its basis practical methods of acmeological research of personal and professional aspects of education specialists and others. Knowledge, understanding, and implementation of such methods in the education system at different levels expands the horizons of individual self-awareness of its main subjects, ensures the progressive development of a specialist in a specific field of activity.

^a <https://orcid.org/0000-0002-3588-768X>

^b <https://orcid.org/0000-0003-0664-9620>

^c <https://orcid.org/0000-0001-5638-2552>

2 RESEARCH METHODOLOGY

The highly productive solution of vocational and educational problems in various education systems is made possible by the introduction of the results of the psychological and acmeological scientific school of Ananiev, B.G. (Ananiev, 1980); acmeology of Kuzmina, N.V., Gladkova, V.N., Pozharsky, S.D. (Kuzmina, Gladkova and Pozharsky, 2007); theory of functional systems Anokhin, P.K. (Anokhin, 1978); implementation of the acme-synergetic concept of the development of personality, society, and the nation as a whole Bransky, V.P. (Bransky, 2000) and Pozharsky, S.D. (Pozharsky, 2012); acmeological theory of fundamental education Kuzmina, N.V. (Kuzmina, 2012) and the accumulated experience of teachers-acmeologists from different regions of the Russian Federation - representatives of various areas of practical acmeology (Zharinova, 2015, 2019), (Pautova, 2019, 2020).

Acmeological theory of NES functioning in a competitive world, according to Kuzmina, N.V., was created as a result of going beyond the boundaries of the disciplines of pedagogy, psychology, private methods, and an alliance with philosophy, social synergetics, and globalization. Fundamental education provides the creation of spiritual products in the properties of the subjects of education. The NES functions through the efforts of specialists - representatives of three strata: 1) basic, 2) management, and 3) research specialists.

Teaching the peaks of mastery of the representatives of the three strata, creating spiritual products in the properties of subjects, is the prospect of the development of education and the acmeology of fundamental education. According to this, the multilevel nature of productive interaction is manifested in activities of:

basic specialists - directly interact with students, creating spiritual products in their properties, providing them with the creation of spiritually materialized and material products, by the quality of which their spiritual products are judged;

management specialists - indirectly interact with students, equipping them with basic knowledge of the merits and demerits of their activities, as well as strategies for self-improvement, self-correction, and self-reorganization. The main contribution of management specialists to the NES is to familiarize basic specialists with the data of interdisciplinary cyclic monitoring (hereinafter referred to as the ICM), and to promote their self-awareness of their own productivity against the background of others;

specialists in the study of the quality of education - directly and indirectly, interact with the basic, management for the given goals of professional activity. Researchers of the quality of education equip representatives of the three strata with theories, technologies, and measurements - in accordance with the criterion - labor productivity and competitiveness of material and spiritual products created by NES graduates.

Research methods: theoretical-historical, methodological and system-logical analysis, content analysis of the results of the activities of teachers-researchers-acmeologists.

3 RESEARCH RESULTS AND THEIR DISCUSSION

In the acmeological theory of fundamental education, N.V. Kuzmina defined the laws of productive education (Kuzmina, 2012):

1. Acmeological laws: global, general and particular.

2. Acme-synergetic laws.

3. Acme-topological laws.

Acmeological laws are achieved by true creators and heroes, creators of invisible products in people themselves, by means of education. Making informed decisions - whose experience should be modeled and developed - during the next modernization, - and who and how to help to improve, is important because no one wants to be unsuccessful, on purpose.

1. Acmeological laws: global, general, private

Acme-laws are persistent, repetitive, testable links and dependencies:

- Between the levels of self-realization of natural potentials in spiritual products and the acme core of educational subjects and factors - subjective, objective, subjective-objective, facilitating and preventing self-realization in achieving the heights of productivity in solving the upcoming tasks, at the entrance to a new environment;
- Between the levels of productivity of basic subject specialists and factors - subjective, objective, subjective-objective - that promote and hinder self-development;
- The universal acmeological law of self-realization of the natural potentials of the basic subjects of education in the acme core of spiritual products, transforming it from natural into creative, - perceived to varying degrees, - providing creative self-development.

In the acmeological theory of fundamental education, Kuzmina, N.V. identified two general acmeological laws (Kuzmina, 2012):

- the general acmeological law of a productive image-result - self-realization of the natural potentials of the subjects of education in the acme core of spiritual products, transforming natural potentials into creative ones;
- general acmeological law of development of productive competence.

Universal acmeological laws apply to all subjects of national education systems.

The theory of functional systems Anokhin, P.K. (Anokhin, 1978) makes it possible to explain the conditions for the competence growth of education specialists. Only personal participation in tactical, operational, strategic feedback of representatives of the three strata develops their productive competence.

The implementation of the General acmeological law of a productive image-result in a teacher's activity is determined by solving five classes of acmeological tasks - three constructive and two control ones, which are solved in each vocational and educational route, taking into account the age, level of education, the requirements of the subsequent route as readiness for productive entry and self-development in it. The peculiarities of the relationship between acme-tasks and postulates of productivity in the teacher's activities are clearly shown in Figure 1.

General acmeological laws of self-realization of natural potentials in the acme core of productive competence of basic subjects of education, the conditions for resolving the Basic Contradiction of Education (BCE), - between the growth of scientific and educational information and the reduction of time for its selection, didactic processing, assimilation, application in practice and extraction from it, new competencies.

The general acmeological law of the creation of spiritual products - productive competence and competencies (skill) is - stable, repetitive, testable connections and dependencies between the levels of creation of spiritual products, - productive competence and competencies - by means of UD in the properties of all or the overwhelming majority of graduates, for the allotted or reduced time, - in the conditions of the main contradiction of education, constantly aggravating under the influence of scientific and technological progress, - causing the concepts of chaos, - requiring cyclical resolution by means of replacing it with a new conceptual order, - born in chaos (Bransky, 2000; Pozharsky, 2012).

The talented and capable are the first to catch it, find ways to resolve it in programs, ASD, teaching guides, and textbooks.

The general acmeological law of resolving the main contradiction of education by means of the productive design of the academic discipline, - stable, repetitive, verifiable connections and dependencies - between the levels of development of productive competence in all or the overwhelming majority of subjects, - that studied this academic discipline, is that the concepts are difficult for assimilation by students, these are, as a rule, concepts that:

- Do not affect the integrity of the course;
- They are not used when solving production problems in production practice;
- They are not used when establishing intra - subject links;
- They are not used when establishing interdisciplinary connections, i.e. concepts, as a rule, remain in the programs by tradition.

Their exclusion facilitates the course, frees up time for the introduction of new concepts, and serves to resolve the basic contradiction of education.

Thus, in the search for laws to resolve the basic contradiction of education, the main reason leading to chaos in the system of concepts, which complicates the educational and cognitive activity of students, has been discovered. This reason in the "settling" system of concepts that are no longer used in modern practice. Old concepts that have served their time - must be removed, to free up space and time for new ones.

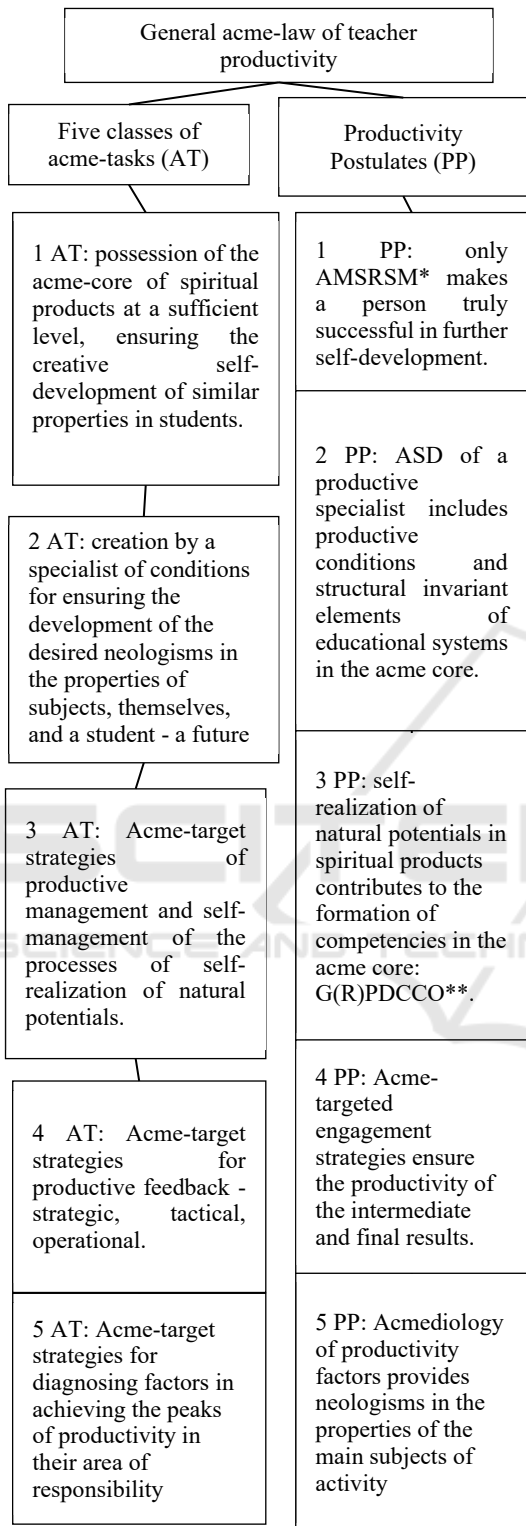


Figure 1: The relationship between acme-tasks and postulates of productivity in the activities of the teacher.

Source: Developed by the authors.

Note to Figure 1: *AMSRSM: A - abilities; M - positive emotional motivation; S - focus on self-realization of natural potentials in the created socially valuable products; R - responsibility to others and to one's own destiny; S - striving for productive competence and competencies; M - creative mastery; ** competences G(R)PDCCO: G(R) - gnostic or research; P - prognostic; D - design; C - constructive; C - communicative; O - organizational

Private acmeological laws of productive problem solving by the basic subjects of education and the students they teach, based on stable, repetitive, testable connections and dependencies between the levels of productive problem solving, and armed with the knowledge of signs by which one can predict which solution will ensure success.

A particular acmeological law of self-realization of the natural potentials of the subjects of education in the acme core of spiritual products that provide anticipation, integration, differentiation, - providing anticipation of the consequences in the future, from the decisions made in the present.

The main means of creating spiritual products are the main types of activities of subjects of education - communication, cognition, labor, - the results of which are in socially valuable products: spiritual, spiritually materialized, material. Means for creating cognitive interests and competencies are academic disciplines in which all officially recognized sciences are represented.

Private acmeological laws of the development of productive self-organization as an indicator of the competence of future bachelors, masters, specialists are stable, repetitive, testable connections and dependencies between the ability to make random decisions "blindly" and research that reveals regular connections that provide a forecast.

The discovery of private laws makes it possible to build new strategies for working with students as adults responsible for professional destiny: competence in the productive solution of upcoming special and professional tasks.

2. Acme-synergetic laws.

Acme-synergistic laws - stable, repetitive, testable connections and dependencies:

- Between the levels of productivity of mega-, macro-, microsystems, national education systems (NES) and factors - subjective, objective, subjective-objective, - promoting and preventing the self-realization of the natural potentials of the subjects of education into creative neologisms, - spiritual products in their properties, - providing them with creative

self-development and self-progress towards achieving the peaks of productivity, - by all or by the suppressed majority of graduates, - fixed at the entrance to a new environment, educational, social, professional;

- Between the levels of productivity of the main subsystems of the NES and the factors that ensure their productivity.
- Acme-synergistic processes occur in various systems and levels:
- In macro educational institutions,
- Municipalities,
- Regions requiring different technologies of organization and impact.

The search for acme-synergetic laws is associated with the concepts: "synergism, synergy", from Greek - "cooperation, commonwealth". In accordance with the acmeological theory of fundamental education by Kuzmina, N.V. these laws apply:

- In physiology - the joint action of any organs or systems;
- In pharmacology, a variant of the body's reaction to the combined effects of two or more medicinal substances, characterized by the fact that this action exceeds the action exerted by each component separately;
- In the development of synergetics - a new scientific direction that studies the connections between structural elements (subsystems) that are formed in open systems (biological, physicochemical, etc.) due to the intensive flow exchange of matter and energy with the environment in nonequilibrium conditions. In such systems, consistent behavior of subsystems is observed, as a result of which the degree of its ordering increases, i.e. entropy decreases (the so-called self-organization).

The professional acme-synergetic task of education quality management specialists in educational organizations, municipalities, and the region is:

- Allocation of high-, medium- and low-productivity basic specialists (teachers),
- Diagnosis of the factors that caused them, the reasons for the differences,
- Determination of acme-strategy and acme-technologies of educational activities of the top ones against the background of medium- and low-productivity, which should be modeled to understand the reasons for defending and providing assistance by means of acme-technologies.

Acme-synergetic laws of productivity of specialists in quality management of education on the

scale of NES are stable, repetitive, testable connections and dependencies between the levels of productivity of wards, their basic education specialists who study objects, processes, results of their activities, their contribution to the results of their educational institution, in which they work - and factors - subjective, objective, subjective-objective, - contributing to and hindering the achievement of the peaks of productivity in solving acme-social-synergetic problems, in accordance with the objective indicator: - the contribution of graduates of their educational institution to increasing the productivity and competitiveness of the products of school shops, municipalities, region.

Thus, the acme-synergetic law of fundamental education ensures the creation of the sought-after spiritual products in accordance with the criterion and factors that promote and hinder the attainment of peaks:

- productive competence and competencies of all or the overwhelming majority of graduates;
- copyright systems of productive activity of basic specialists;
- productive competence of education quality management specialists.

This is ensured by research specialists, creators of economical and accurate measuring instruments.

3. Acme topological laws - stable, repetitive, testable connections and dependencies:

- between the levels of productivity of specialists-researchers of the quality of education, - measuring, diagnosing the causes of success and failure, development trends, - according to the criterion of the time factor, - collecting empirical information, processing, issuing results, and making informed decisions for public recognition of truly outstanding results.

"Topological laws of compressed time" - at the suggestion of Ananyev, B.G. the laws of public recognition of productive innovations. Ananyev, B.G. used the category of chrono-topology - the science of time condensation by means of scientific knowledge, as distinct from chronological, associated with the measurement of time. Only after the application of a proven system of measurements in education and the creation on their basis of fundamental theories that provide a forecast, it becomes truly fundamental.

The search for acme-topological laws of the development of the productive competence of specialists - researchers of the quality of education can be served by the introduction of Multilevel Cyclic Monitoring (MCM) in the region. This is due to the

fact that in comparative studies of the productive interaction of representatives of the three strata, productive technologies and measurements are actualized, which can be adopted as conditional standards for organizing new comparative studies in the regions.

Acme-topological laws of fundamental education are stable, repetitive, testable connections and dependencies between the levels of productivity of specialists-researchers of the quality of education, - basic, management, research, - theories, technologies, measurements, influencing the increase of their productive competence and competencies, leading to labor productivity and competitiveness of products created by NES graduates.

Based on the results of the ICM and the accounting of acme-laws, the leaders of the NES have the opportunity to study and describe the systems of activity and structures of the productive competence of top specialists, basic, management, research to create information support for new specialties:

- acmeologist-manager of basic subject specialists;
- acmeologist-manager of education quality management specialists of the municipality;
- acmeologist-manager of specialists - researchers of the quality of education.

4 CONCLUSIONS

Thus, acmeological laws are fundamental, verified by practice and provide a forecast. Their implementation allows: to teach the peaks of skill in the creation of information, communication and technological support, based on the forecast, to justify promising lines; criteria for assessing the moral actions of students and the moral behavior of teachers associated with self-correction of their activities and behavior.

Learning the peak productive activity is the inevitable future of all NESs without exception. The creation of such a spiritual product as productive competence, which integrates the acquired knowledge with the skill of its application in practice, is consistent with the natural and need of each person for self-realization. This kind of learning makes education truly fundamental. Mastering the peaks of productivity is the need for all or the overwhelming majority of subjects of education.

Acmeological laws of productivity of fundamental education on the scale of the Russian Federation are applicable in all types of educational organizations when teaching the peaks of

productivity and professionalism of all types of creative activity, including pedagogical, acmeological, medical, engineering and others.

REFERENCES

- Kuzmina, N.V., Gladkova, V.N. and Pozharsky, S.D. (ed.) (2007). *Acmeology of activity*. St. Petersburg.
- Ananiev, B.G. (1980). *Selected psychological works*: in 2 volumes, Vol. 1: Man as a subject of knowledge. Bodalev, A.A. (ed.). Moscow: Pedagogy
- Anokhin, P.K. (1978). *Philosophical aspects of the theory of a functional system: selected works*, Moscow: Science.
- Bransky, V.P. (2000). Social Synergetics and Theory of Nations. *Fundamentals of Ethnological Acmeology*. St. Petersburg: SPbAA.
- Zharinova, E.N. (2015). *Psychological and acmeological technologies in education*: monograph. St. Petersburg: Center for Strategic Studies
- Kuzmina, N.V. (2012). *Acmeological theory of fundamental education (creation of spiritual products in the properties of subjects of education by means of academic disciplines)*: monograph. St. Petersburg: Publishing house of NU "Center for Strategic Research".
- Kuzmina, N.V., Pautova, L.E. and Zharinova, E.N. (2020). Acmeological foundations of the formation of the teacher's professional competence. *Bulletin of the Saratov University. New episode. Series Acmeology of Education. Developmental Psychology*, 8(1(33)), 4-12.
- Pautova, L.E. (2020). A strategy of competitiveness and professional career of an education specialist. Russia: Trends and Development Prospects, (15-2), 565-572.
- Pozharsky, S.D. (2012). Acmeological approach to the problem of human development. *Bulletin of the Saratov University. New episode. Series Acmeology of Education. Developmental Psychology*, 1 (3), 7-11.
- Kravchenko, S.A. (2018). Why innovative knowledge about Russian society is in such a demand. *Polis (Russian Federation)*, 4, 185-191.
- Nechaev, N.N. (2018). Category of development as the basis of psychological and pedagogical research in education. *Cultural-Historical Psychology*, 14(3), 57-66.
- Zborovsky, G. and Ambarova, P. (2019). The dream of quality education: Contradictions in the development of educational communities in Russian Universities. *Mir Rossii*, 28(2), 98-124.