

IFTE 2018
4th International Forum on Teacher Education

**RETROSPECTIVE PEDAGOGICAL RESEARCH ON THE
PRINCIPLES OF EDUCATION**

Azat M.Gaifutdinov (a), Tatiyana V. Gaifutdinova (b)*, Gulnur M.Polkina (c)

*Corresponding author

(a) Naberezhnye Chelny State Pedagogical University, Naberezhnye Chelny, Russia, am-geo@mail.ru

(b) Naberezhnye Chelny State Pedagogical University, Naberezhnye Chelny, Russia, tv-geo@mail.ru

(c) Naberezhnye Chelny State Pedagogical University, Naberezhnye Chelny, Russia, gulnurpolkina@gmail.ru

Abstract

Principles are the subject of scientific interest for many centuries in the history of pedagogy. The formation of the concept "principle of education" began in the early twentieth century with its introduction into the system of pedagogical science. The goal of the research is to define the main directions to solve the problem of the principles of education. To achieve the aims and objectives of the research, the following methods of investigation were used: historical and pedagogical analysis, theory generalization and interpretation of the results of pedagogical and historical-pedagogical studies. The work includes important information on the history of pedagogical thought development in the twentieth century, on the genesis of the principles of education, their functions in the educational process, as well as the correlation of the principles with the laws and regularities of education. Historical-pedagogical analysis revealed a wide range of views, expressed in the pedagogical works of the period 1970-2006, on the functional, essential and genetic features of the principles. The conclusion is that the majority of functional definitions of the principles emphasize the connections of their work in the educational process with the laws and regularities in the pedagogical process; in the essential definitions, the principles of education are presented as a theoretical basis for the organization of the educational process. The materials presented in the article make it possible to identify the main approaches to solve the issue of the principles of education.

© 2018 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Principles of education, educational process, laws of education, regularities of the pedagogical process.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

To increase the effectiveness of educational process has been one of the main objectives of didactics for many centuries. The discovery of regular connections which are reflected in the principles of education, will make it possible to solve the problem. The works of Yan A. Kamensky were fundamental for the development of the doctrine of principles. However, the introduction of the concept "principle of education" into the system of scientific knowledge took place only in the 20-th century (Logvinov, 2010). There are still no definite answers as regards the quantity of principles, their genesis and structure. Instead of classifying didactic principles, textbooks and teaching manuals on pedagogy just list the requirements for the organization of the educational process. As a consequence, there is either a complete refusal to consider principles as a theoretical basis for the organization of the educational process, or the unjustified introduction of new interpretations under the title "principles": the principles of teaching a particular subject, the principles of technology teaching, the principles of instruction at school, etc.

In Soviet pedagogy, and then in Russian pedagogy, the issue of principles has always been considered as conflicting. A heated discussion of the genesis of the principles, their functions in the educational process, as well as the correlations of principles with the laws and regularities in education, was presented on the pages of the magazine *Sovetskaya Pedagogika* in the period 1946-1951 and in the early 70-ies of the twentieth century. The foundations for the formation of principles of education were the following: 1) the aims and scientific content of education; 2) age differences and psychological characteristics of students (Ogorodnikov & Shimbirev, 1946); 3) patterns of the formation of communist ideology (Skatkin, 1950); 4) the regularities of the pedagogical process (Zankov, 1953, 1968); 5) goals and objectives of the upbringing (Ganelin, 1961; Sorokin, 1974; Ogorodnikov, 1978; Savin, 1978; Podlasiy, 1999). A distinctive characteristics of modern scientific views on the foundation of the principles of education can be considered a close connection of the theory and practice of education: 1) the practice of the educational process, based on its theoretical generalization (Krivshenko, 2006); 2) development of the theory and practice of teaching and learning, the result of the discovery of new regularities of the process (Slastenin, 2007); 3) the foundation of principles occurs on the basis of a scientific analysis of education (Pidkasisty, 2007).

2. Problem Statement

The problem of principles is complex, and it involves not only the issues of the structure of the educational process, but also a number of scientific pedagogical problems.

To determine the concept of the "principle of education", the established hierarchy of pedagogical knowledge and the clean separation of functions among pedagogy, didactics and methods of teaching specific subjects are a prerequisite. The absence of such a differentiation leads to a confusion of the pedagogical concepts "law", "principle", "regulation".

The confusion of the concepts further on generates an uncontrolled rate of the definitions, requirements for the structure of the educational process, which are mistaken as didactic principles. Without clarification of the number of principles existing, the problem of the classification could not be solvable.

According to the genesis of principles, definitions are divided into two groups: 1) definitions in which pedagogical regularities are indicated as the genetic foundation for principles of education, 2)

definitions that represent theories (doctrines) as the basis for the formation of principles. The issues concerning the quantity of principles of education and their classification are still in the field of scientific debate. The materials presented in the article make it possible to identify the main approaches to solve the issue of the principles of education.

3. Research Questions

The main issues of the research are:

Criteria of the concept of "principle of education" and their connections with the pedagogical concepts of "law", "principle", "regulation".

The concept of "principle of education" is defined through the closest type and kind differences, which meets the requirements of genetic, essential, functional, structural types of logic.

Methodological foundation for classification of the principles of education.

The structure and content of the principles of education.

4. Purpose of the Study

The research is devoted to the scientific-pedagogical comprehension and generalization of the genesis of the principles of education, their structure and content based on the analysis of the history of national pedagogy in the second half of the 20th and beginning of the 21st century, it is tackled as the main resource to improve the modern educational process. The interrelation of all the components of the concept content of "principle", which determines the complexity of the problem being solved, is the connections of the system of pedagogical concepts "law - principle - regulation". The goal of the research is to determine the prerequisites and identify the main directions to solve the issue of the principles of education in national pedagogy.

5. Research Methods

To achieve the goal and solve research objectives, a set of complementary methods are used.

Methods, based on general principles of cognition, are the laws of dialectics and logic.

General scientific methods of cognition (analysis, synthesis, analogy, comparison, generalization, classification, systematization, abstraction, interpretation, prediction, logical-historical analysis, methodological analysis of scientific concepts, analysis and generalization of scientific and literary resources, etc.).

General pedagogical theoretical methods of investigation (historical-pedagogical analysis, theoretical generalization and interpretation of the results of pedagogical and historical-pedagogical studies).

6. Findings

The conceptual-terminological system of pedagogy has a number of features, conditioned by the history of the development of the science. For example, the streams of empirical knowledge that pedagogy assimilated without proper theoretical generalization deprived the strictness of the formulations of pedagogical concepts as different from other areas of science (Kantor, 1980). Another feature is that in

pedagogy there are clearly two styles of narration: science-fictional and fictional style, because the science itself was founded by philosophers, scientists, writers (Komarovsky, 1969). The nature of didactic knowledge is classified as spiritually practical (Logvinov, 2010). These reasonings gave rise to the main feature of pedagogical terminology – its synonymy. According to the logic, synonymy is important for expressing different shades of meaning, highlighting the different traits of the subject reflected in it. However, it is fraught with the danger of logical errors: confusion of concepts, substitution of concepts, etc. (Ivanov, 2002).

The closest concepts associated with the concept of "principle of education" and reflecting the features of the pedagogical process are "law", "regularity", as well as "regulations of education". For the precise definition of the concept of "principle of education," the first task is to determine the relationships of related concepts with regards to the scope. Studies show that there is an unambiguous understanding of the scope of the concepts "principle" and "regulation". Type of relationship is the subordination of compatible concepts. "Principle" (general term for the practice of teaching and learning, and educational activity) appears as a subordinate concept, whereas "regulation" (which is more established as a norm of pedagogical guidelines) is under subordination. Equivalence is defined with regards to the concepts of "law" - "principle" and "law" - "regularity". In the definition of the law, the objectivity of the action is most often indicated.

Laws in the field of pedagogical science started to be intensively viewed in the 1970s. Attempts were made to formulate the laws, but at the same time, there emerged the issue of the criteria for compliance of the variants of definitions of the laws practically existing to the concept of "law". Doubts about the objectivity of the laws "opened" in pedagogy made it possible to assert a judgment about their absence (Gershunsky, 1979).

The regularities are of empirical nature. This is similar to the regulations of education. Unlike regularities, the regulations reflect the connections that are formed in the educational process. The regularity is designed to reflect the connection of educational process with other activities that help to mold a personality. The regulation of education determines the effect of the principle of education under certain conditions. The indicated relationship does not state the objectivity of the action.

Objectivity of action is a common feature of the law and principle of education. From philosophical point of view, the concepts of "law" and "principle" have one of the meanings in common - the "axiom" (Huseynov & Semigin, 2010), which confirms the conclusion about their equivalence. Differences between the definitions of principles and laws should be noticed in the differences of concepts that stand for the terms of judgment. The terms of judgment performing the role of the principle of education should express the dialectical unity of the components of educational process, whereas the law performed by the terms of judgments reflects dialectical connections in the pedagogical process (the interrelationship of teaching and learning, upbringing and molding a personality).

Analysis of the definitions "principle of education", presented in the pedagogical works of the period of the second half of the XX to the beginning of the XXI century, reveals a wide range of views on the functional, essential and genetic features of the principles. Textbooks and teaching manuals include functional definitions of the concept of "principle of education". There are also essential definitions of the principles of education, but few definitions are genetic. There are no structural definitions of the principles

of education, which are to disclose the components of the system, i.e. principle of education. The most common concept, indicated as the closest type to the concept of "principle", is the concept of "guideline".

The majority of functional definitions of the principles relate the action in the educational process to the laws and regularities of the pedagogical process. There are three main variants to define the functions of the principles of education in the pedagogy: a) didactic principles determine the entire process of education (Ogorodnikov & Shimbirev, 1946; Konstantinov & Medynsky, 1956; Sorokin, 1974; Danilov & Skatkin, 1975; Shchukin, 1977; Ogorodnikov, 1978; Kazansky & Nazarov, 1978; Skatkin, 1950; Babansky, 1983; Pidkasisty, 1998; Podlasiy, 1999); b) the principles of education determine teacher's activities (Skatkin, 1950; Ackerman, 1956; Ilyin, 1968; Slastenin, Mishchenko, & Shiyanov, 1998); c) didactic principles determine teachers' and students' activities (Zankov, 1953, 1968; Savin, 1978; Baranov, 1981; Bolotina, Baranov, & Semushina 1987; Kharlamov, 1998).

In essential definitions, the principles of education are presented as a theoretical basis for the organization of the educational process. The analysis of the definitions suggests two main approaches in formulating the concept of "principle of education" in the pedagogy.

The followers of the first approach admit the objectivity of didactic principles on the basis of the laws of the educational process. The historical character of principles was highlighted as the development of the concept: the definitions are clarified; the scope of the concept is enlarged and deepened. Principles of education were defined as the main guidelines, guiding something (Gruzdev, 1956, Gmurman, 1971; Shchukin, 1977; Babansky, 1982, 1983; Okon, 1990).

The followers of the second approach treat any restrictions as an indication of the scope of the didactic principles. The historical nature of the principles is manifested in the coexistence of principles within a single socio-economic formation, the pedagogical system (the didactic concept), teaching of a subject. Principles were defined as "norm", "postulate", "regulators" (Konstantinov & Medynsky, 1956; Danilov & Skatkin, 1975; Zagvyazinsky, 1978; Skatkin, 1950; Lerner, 1985; Kraevsky, 1985).

All genetic definitions can be divided into two main groups according to the source of principle foundation: 1) definitions in which pedagogical regularities are indicated as the genetic foundation of the principles of education, 2) definitions that represent theories (doctrines) as the basis for the foundation of principles.

The issue of the structure of the principles was not widely discussed in scientific community of the period. There are some articles in which the concept is mentioned while characterizing the principles of education (Zagvyazinsky, 1978; Vendrovskaya, 1982). The attempts to find the definition of the concept of "structure" in the system of pedagogical knowledge, referring to the dictionaries and encyclopedias on pedagogy, were in vain, in most of the resources the concept "structure" was absent (Davydov, 1998; Zagvyazinsky & Zakirova, 2008). The Reference Dictionary on Pedagogy by Mizherikov (2004) includes two meanings of the concept "structure", however the structure of principles of education is not introduced.

In the middle of the twentieth century, the study of the interrelations between the principles of education was a high priority issue in national pedagogy. In the 1960s and 1970s, the basic concepts were singled out from the number of variants of principles; their interrelations, subordination, and also functioning as a system was investigated. By the beginning of the 1980s there were formed two main directions to devise the system of principles in education. Most authors of the works in pedagogy observed the set of principles as a hierarchical system, subordinated to the leading principle. As the leading principles

of education, the following options were pointed out: teaching strong-willed people to overcome difficulties (Makarov, 1938), the conscious learning (Ganelin, 1961), the principle of education orientation on the development of all-round and harmonious personality (Zagvyazinsky, 1978), development of a scientific character and communist partisanship (Mikheev, 1982). In the 1980s, one more version of the hierarchical system of principles emerged within the framework of the didactic concept (Lerner, 1985; Pidkasisty, 2007). The idea of creating the system of principles for each pedagogical direction was highlighted in another proposal. The essence of the proposal was to reflect the peculiarities of educational institutions in the system of principles in order to reveal specific principles of education for them. In the early 2000s, this idea was transformed into another branch of the hierarchical systematization of principles. The systems of specific principles for teaching certain subjects are created (Plotnikova, 2003; Ponomareva, Solomin, & Sidelnikova, 2003).

Another approach to the division of principles was based on the correspondence of principles to the regularities of education (Gmurman, 1971; Babansky, 1982). The quantity of principles of education and their classification issues are still in the field of scientific discussion.

Dialectical nature of the principles in the educational process suggests determining the laws of dialectics as a methodological basis for the division of principles. Thus, all the principles of education can be divided into three groups: 1) the principles that determine the source of development of the educational process and specify the operation of the law of unity and conflict of opposites; 2) principles revealing the mechanism of the educational process and concretizing the law of the transformation of quantity into quality; 3) the principles determining the direction of the educational process development and concretizing the operation of the law of non-contradiction negation. Studies reveal that the most developed in the national pedagogy is the issue of contradictions as sources and driving forces of the educational process development. Didactic principles reflecting the law of unity and conflict of opposites in the process of education are clearly formulated (Danilov & Skatkin, 1975). There are no didactic laws and principles reflecting the operation of the law of the transformation of quantity into quality and the law of non-contradiction negation, revealing the general mechanism and directions of the educational process development.

The prevailing subjective approach to the formulation of principles is the main reason for the uncontrolled rate of their number. This contradicts the essence of the principles that are taken as laws in the educational process.

The search for the structure of principles is possible both on the basis of structural analysis and in terms of logic. Taking into account that the basic form of producing the principles of education is verbal, structural analysis can provide a general approach to the study of all the variants of the requirements for the educational process presented in the pedagogical literature as principles of education.

From the point of view of logic, laws, principles, rules that reflect the connections in the educational process are judgments. The study of laws, principles and rules as judgments leads to the conclusion that they have an identical structure. Differences could be in the content of concepts that play the role of the subject and predicate of judgments. According to logic only declarative sentences make judgments (Ivanov, 2002). The analysis of the contents of the principles presented in textbooks and teaching manuals on pedagogy suggests that the overwhelming majority of definitions are phrases or words in terms of linguistics. Thus, principles are not formulated, but only their names are indicated with further decoding of

the concept. The absence of a full sense in words and phrases about the revealed connection in the process of education leads to an arbitrary interpretation of the content of the principle.

In the system of pedagogical knowledge, there is a lot of material devoted to the reasoning of principles, which is subjective in nature, and which reflects the external influence on scientific search. In such conditions, the name of the principle, representing the interrelation of concepts, becomes significant. It is possible to point out a number of criteria to evaluate the principle with regards to its structure: 1) the idea expressed in the name of the principle should refer to the process of education on the whole, but not to a separate component or a number of components of the educational process; 2) the concepts included in the name of the principle should have a stable relationship and ensure the existence of the principle in scientific knowledge as a single whole entity; 3) according to the definition of the concept "principle", this whole entity (principle) should reflect the work of one of the laws of dialectics.

The analysis of more than 130 definitions of the principles of education, presented in the textbooks and teaching manuals on pedagogy, reveals that 74% constitute single cases of usage; most variants are pedagogical ideas for increasing the effectiveness of the teaching and learning process require further development and theoretical generalization. The main objective of such studies is the search for dialectical links for the formation of an appropriate structure of principles.

7. Conclusion

Equivalence of the concepts "principle" and "law" leads to a nonsense existence of both principles and laws in the frame of the process of education. This can explain the lack of open laws of teaching and learning, and lack of the generally accepted system of pedagogy. Principles, performing the role of laws in the process of education, concretize the work of pedagogical laws that reflect the regular connections between the process of education, training and personality formation. Today, to identify the regularities (laws) of the pedagogical process there is a need for a complex research conducted by teachers, psychologists, and doctors.

Based on the research, the following variants of the concept of the "principle of education" are defined through the relation to the closest type and kind differences, which reflect the objective work of the principle in the educational process, and which corresponds to the requirements of logic: a) functional definition: the principles of education are the basic law of didactics reflecting the work of pedagogical laws in the process of education. The system of pedagogical laws being absent, it requires the correction of the functional definition: the principles of education are the basic law of didactics, reflecting the dialectical connection of the fundamental components of the process of education (the activity of the teacher and the activity of students for transformation of the content of education); b) the essential definition: the principle of education is the reflection of the dialectical connections between fundamental components of the process of education, which determines the work of one of the laws of dialectics in the process of education, i.e. revealing either the source, or mechanism, or the direction of the development in the educational process; c) genetic definition: the principle of education is the realization of the idea of increasing the effectiveness of the educational process, that emerges as a result of theoretical generalization of the practice of education organization and practice of teaching, which is formulated as a judgment whose terms reveal the dialectical links of the main components of education. In another genetic definition of the "principle of education",

pedagogical law will be presented as the second, universal basis of the genesis of principles: the principle of education is the realization of the idea of increasing the effectiveness of the educational process, as a result of concretization of the work of the pedagogical law, formulated as a judgment whose terms are disclosed by dialectical links of the main components of the process of education.

In the absence of pedagogical laws, the foundation of educational principles is based on the practical experience of teachers. Based on the analysis of the national pedagogical literature of the second half of the twentieth and beginning of the twenty-first century, we can conclude that the issue of the genesis of the principles of education in pedagogy is poorly studied.

The division of principles into methodological, general pedagogical, the principles of teaching strategies, individual pedagogical concepts is artificial. It is not based on objective links that are to reflect didactic principles, but on the hierarchy of the principles to achieve the educational goal which depends on the outer conditions. According to the dialectical nature of the action in the process of education all the principles of education can be divided into three groups. Thus, the system of the principles of education revealing the foundation, mechanism and direction of the educational development is formed.

Examples of educational principles that have a dialectical nature of action in the process of education and a structure that satisfies the requirements of logic are presented in the following judgments: a) "in the educational process, the unity of consciousness, the enthusiasm of students and pedagogical guidance in the transformation of the content of learning is manifested," the process of education is based on the unity and the impact of teaching students in groups and individually "- these principles specify the work of the dialectical law of unity and conflict of opposites in the process of education and identify the source of the educational process development; b) "Consecutive teaching ensures knowledge acquisition", " the teacher's activity in the transformation of scientific content while teaching determines the availability of students' knowledge acquisition" - these principles determine the mechanism of development of the educational process and specify the effect of the dialectical law of the transition of quantity into quality; c) "the educational process aims to develop cognitive abilities of students linking theory and practice " - the principle determines the direction of the development of the educational process and specifies the work of the negation of negation law.

References

- Ackerman, S.I. (1956). Principles and rules of teaching in the Soviet school. *Soviet Pedagogy*, 7, 116 - 118.
- Babansky, Yu. K. (1982). Interrelation of regularities, principles of training and methods. *Soviet Pedagogy*, 7, 68 - 77.
- Babansky, Yu. K. (1983). *Pedagogy: manual for students of pedagogical institutes*. Moscow: Prosveschenie.
- Baranov, S. P. (1981). The essence of the learning process. Textbook for special courses for students of pedagogical institutes. Moscow: Education.
- Bolotina, L. R., Baranov, S. P., & Semushina, L. G. (1987). *Pedagogy: Manual for students*. Moscow: Prosveshchenie.
- Danilov, M. A., & Skatkin, M. N. (1975). *Didactics of high school: Some problems of modern didactics. Textbook for students*. Moscow: Prosveschenie.
- Davydov, V. V. (1998). *Russian pedagogical encyclopedia*. Moscow: The Great Russian Encyclopedia.
- Ganelin, Sh. I. (1961). Principles of didactics in their correlations with the classics of pedagogy. *Soviet Pedagogy*, 5, 121 - 129.
- Gershunsky, B. S. (1979). On the issue of the nature of pedagogical laws. *Soviet Pedagogy*, 7, 52 - 59.

- Gmurman, V. E. (1971). To the question of the concepts of "law", "principle", "rule" in pedagogy. *Soviet Pedagogy*, 4, 64 - 76.
- Gruzdev, P. N. (1956). Concepts of law, principles and rules in pedagogy. *Soviet Pedagogy*, 4(5), 3 - 32.
- Huseynov, A. A., & Semigin, G. Yu. (2010). *New philosophical encyclopedia in 4 volumes*. Moscow: Mysl.
- Ilyin, T. A. (1968). *Pedagogy. Textbook for students*. Moscow: Prosveschenie.
- Ivanov, E. A. (2002). *Logics. Textbook*. Moscow: Publishing House BEK.
- Kantor, I. M. (1980). *Conceptual-terminological system of pedagogy: logical-methodical problems*. Moscow: Pedagogika.
- Kazansky, N. G., & Nazarov, T. S. (1978). *Didactics (elementary classes)*. Moscow: Prosveschenie.
- Kharlamov, I. F. (1998). *Pedagogy*. Minsk: University.
- Komarovsky, B. B. (1969). *Russian pedagogical terminology. Theory and history*. Moscow: Prosveschenie.
- Konstantinov, N. A., & Medynsky, M. F. (1956). The main issues of pedagogy. Moscow: Uchpedgiz.
- Kraevsky, V. V. (1985). *Didactic principle as a structural element of the scientific substantiation of teaching. Principles of teaching in modern pedagogical theory and practice*. Chelyabinsk: CHGPI.
- Krivshenko, L. P. (2006). *Pedagogy: textbook*. Moscow: Prospekt.
- Lerner, I. Ya. (1985). *The nature of teaching principles and ways to establish them*. Chelyabinsk: CHGPI.
- Logvinov, I. I. (2010). *Didactics: history and contemporary problems*. Moscow: BINOM.
- Makarov, P. D. (1938). To the question of the principles of Soviet didactics. *Soviet Pedagogy*, 9, 22 - 25.
- Mikheev, S. V. (1982). On the system of general pedagogical principles. *Soviet Pedagogy*, 2, 56 - 57.
- Mizherikov, V.A. (2004). *Dictionary-reference book on pedagogy*. Moscow: TC Sphere.
- Ogorodnikov, I. T., & Shimbirev, P. N. (1946). *Pedagogy. Textbook for teachers*. Moscow: State Educational and Pedagogical Publishing House of the Ministry of Education of the RSFSR.
- Ogorodnikov, I. G. (1978). *Pedagogy of school. Textbook for students of pedagogical institutes*. Moscow: Prosveschenie.
- Okon, V. (1990). *Introduction to general didactics*. Moscow: Higher School.
- Pidkasisty, P. I. (1998). *Pedagogy. Textbook for students of pedagogical universities and teacher colleges*. Moscow: Pedagogical Society of Russia.
- Pidkasisty, P. I. (2007). *Pedagogy: a textbook*. Moscow: Higher Education.
- Plotnikova, E. G. (2003). Pedagogy of mathematics: subject, content, principles. *Pedagogy*, 4, 32-35.
- Podlasiy, I. P. (1999). *Pedagogy. New course. Textbook for students*. Moscow: The Humanitarian Publishing Center VLADOS.
- Ponomareva, I. N., Solomin, V. P., & Sidelnikova, G. D. (2003). *General methodology of teaching biology: manual for students of pedagogical universities*. Moscow: Academy.
- Savin, N. V. (1978). *Pedagogy*. Moscow: Prosveschenie.
- Shchukin, G. I. (1977). *Pedagogics of the school (textbook for students of pedagogical institutes)*. Moscow: Prosveschenie.
- Skatkin, M. N. (1950). On the principles of education in the Soviet school. *Soviet Pedagogy*, 1, 27 – 41.
- Slastenin, V. A. (2007). *Pedagogy: teaching for students of high educational institutions*. Moscow: Academy.
- Slastenin, V.A., Mishchenko, A. I., & Shiyanov, E. N. (1998). *Pedagogy: manual for students of pedagogical institutions*. Moscow: School-Press.
- Sorokin, N. A. (1974). *Didactics. Textbook for students of pedagogical institutes*. Moscow: Prosveschenie.
- Vendrovskaya, R. B. (1982). Essays on the history of Soviet didactics. Moscow: Pedagogy.
- Zagvyazinsky V. I., & Zakirova, A. F. (2008). *Pedagogical dictionary: teaching materials for students*. Moscow: Academy.
- Zagvyazinsky, V.I. (1978). On the modern interpretation of didactic principles. *Soviet Pedagogy*, 10, 66 - 72.
- Zankov, L. V. (1953). Some questions of the methodology of didactic research. *Soviet Pedagogy*, 4, 20 - 32.
- Zankov, L. V. (1968). *Didactics and life*. Moscow: Prosveschenie.