

## LAWS AND REGULARITIES OF VOCATIONAL PEDAGOGY

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### ABSTRACT

The issue under study is relevant, since a modern pedagogical science needs to establish a dialectical relationship between the theory and practice of vocational education, because research in this area as well as in vocational pedagogy has lagged behind the implemented practical transformations and reforms in recent years.

The aim of the paper is to justify the definition of “vocational pedagogy” and to find out whether it is right to use the terms “law” and “regularity” with respect to an independent field of a pedagogical science – vocational pedagogy.

The leading approach to studying the above issue is the method of modelling, which enables to reveal the peculiarities of the effect of formulated regularities of vocational pedagogy at the modern stage of society development, to extrapolate their effect on the nearest future of vocational education development and to provide a science-based forecast of its evolution.

The results of the research: we revealed the regularities of vocational pedagogy and vocational education, gave a definition of vocational pedagogy as a methodological basis for vocational education, and defined the perspectives of their development.

The materials of the paper may be useful for specialists in regulatory, theoretical and practical activities in education for developing and improving educational and professional standards as well as for developing a model for creating future competitive employees in the system of vocational education taking into account the established regularities in the development of the theory and practice of vocational education.

**Keywords:** laws, regularities, creative thinking, vocational education, vocational pedagogy, standards.

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## 1. INTRODUCTION

When justifying vocational pedagogy as an independent pedagogical science and revealing the regularities of professional development, we certainly needed to define it, and, therefore, to reveal the essential signs of this field and their characteristics. In the beginning of our research, we used of the logical methods – deduction (transition from the general to the specific) – to reveal the unique features of the specific notion “vocational pedagogy” basing on the generic signs of the notion “pedagogy”. However, there was another challenge: the definition of the notion “pedagogy” does not involve all the introduced signs, which are intrinsic to vocational pedagogy. Therefore, they needed an additional explanation. Indeed, definitions are known to determine the accuracy of our thinking. Therefore, it is extremely important to formulate the unknown definition.

Unlike pedagogy of secondary education, the issues of vocational pedagogy as an independent pedagogical discipline and an independent pedagogical field started to be elaborated quite recently in Russia. Therefore, the reference list on this field of a pedagogical science is still small. One of the earliest definitions of vocational pedagogy can be found in A.A. Kyveryalg’s monograph (1980), “Vocational pedagogy is a science, which studies vocational pedagogical phenomena, i.e. phenomena associated with the issues of training and education in human vocational activities.” As we noticed, vocational pedagogy began to develop intensively due to the industrialization of production. Now, we should possibly add another reason: new global reality in vocational education and a gradual change of educational paradigms. In recent years, the regularities of the development of vocational pedagogy and vocational education have been raised in the works of S.Ya. Batyshev (1997), M.A. Erofeeva (2006), V.I. Zagvyazinsky & I.N. Emelyanova (2012), E.F., Zeer (2013), G. I. Ibragimov (2014), E.M Dorozhkin. & E.F.Zeer (2014), Dorozhkin, E.M., Chelyshkova, M., Malygin, A., Toymentseva, I.A. & Anopchenko, T.Y. (2016), V.A.Fedorov & S.V Komleva (2017) , V.A. Fedorov & N.V.Tretyakova (2017), Dorozhkin E.M., Zeer E.F., Shevchenko V.Y. (2017) et al. Analyzing the competitiveness of the Russian education, Ya.I. Kuzminov (2013) argues that they often begin to refer to intellectual capital – the ability to generate, select and master innovations – taking into account the higher growth of the creative sector of economy. Meanwhile, there is a challenge, an objective contradiction: as the volume of information increases, the intellectual and creative abilities of a modern generation and their abilities to process this information gradually reduce. In July 2014, one of the Western weeklies published the results of the research conducted by the scientists at Brussel Free University jointly with their colleagues from Amsterdam and Irish State University. They

reported the intellectual regress of civilization for the last 100 years. It turned out that people's IQ has dropped by 14.1 points for 100 years. The researchers have found that the IQ of a European diminishes by 1.23 points for a decade in average.

Therefore, scientific understanding of vocational education and vocational pedagogy, revealing the regulations in their development at the modern stage, and establishing specialist's professional thinking are of great practical significance now.

## **2. METHODOLOGICAL FRAMEWORK**

### **2.1. Methods of study**

We used theoretical (analysis; synthesis; specification; generalization; method of analogies; modelling; historical logical method, projecting and social prognostic modelling) and empirical (observation, description, study of documents) methods in our research. The philosophic anthropological approach to the establishment of a competently developed individual in the system of modern social relationships became a methodological basis for the research, while activity and system approaches enabled to find the place and role of a learning individual (a future employee) in a modern economic and social system in general.

### **2.2. Experimental base of research**

The system of vocational pedagogical educational establishments in the Russian Federation became an experimental base for the research.

### **2.3. Stages of research.**

The research consisted of three stages:

At the first (*theoretical search*) stage, we analyzed existing methodological approaches in philosophic, economic and pedagogical scientific literature, revealed the problem, aim, and methods of research, and specified the notions and methodology of research.

At the second (*theoretical modelling*) stage, we elaborated the model of vocational education system taking into account the effect of special regularities of vocational pedagogy. Besides, we conducted an experiment on the basis of various educational establishments, analyzed, checked and specified the conclusions obtained during the experimental work.

At the third (*theoretical analytical*) stage, we finished the experimental work, specified theoretical and practical conclusions, generalized and systematized the obtained results and approbated them at the level of scientific reports and publications.

### 3. RESULTS.

The results of research were used in elaborating the strategic development of educational establishments within the system of vocational pedagogical education in a new social and economic situation. Besides, they were implemented in the educational process of higher education establishments as guidelines for vocational methodical training of students and professors within a framework of advanced training and recommendations for secondary education establishments on improving the vocational guidance work with students.

The results of the research were covered in scientific theoretical developments within a framework of the State Assignment of the Ministry of Education and Science of the Russian Federation “The Study of Theoretical Methodological Issues of the Development of Vocational Pedagogical Education in a Modern Situation.” (2014-2017)

We assume that vocational pedagogy at the empirical level (long before social pedagogy emerged as a science) originally occurred and evolved as an independent pedagogical science, since its aims and objectives always differed from the aims and objectives of the pedagogy of secondary education and performed its mission based on labor and reasonable transforming activities of a person in producing, first of all, material benefits and learning the world around; however, it becomes obvious only now.

Besides, we cannot treat vocational pedagogy as a specific application of pedagogical knowledge to the sphere of vocational education, because it has another methodological basis, first of all, anthropological (Romantsev & Verbitskaya, 2006). Scientists define the anthropological approach in pedagogy as a special philosophic methodological principle, which enables to carry out a study taking into account the achievements of sciences of a human in the situation of development and self-development of educational systems.

I.P. Smirnov (2006) justifies an independent scientific trend – “a theory of vocational education”. The author assumes that it is “wider than vocational pedagogy and involves, apart from its content and pedagogical technologies, the issues of management, financing, professional orientation, employment, and adaptation.” He correctly argues that the theory of vocational education implies creating new pedagogy. “This is determined by two main factors: new (interdisciplinary) content and new pedagogical technologies (didactics) of education (Smirnov, 2006). In our opinion, this understanding of vocational pedagogy is based on a strict view of this science as pedagogy of elementary vocational education (as it was in the 1980-1990s). However, modern understanding of vocational pedagogy, which is broader, quite agrees with the concept and the idea represented by I.P. Smirnov (2006); therefore, changing terms becomes useless.

Now, vocational pedagogy is increasingly acquiring a status of an independent pedagogical science, which reflects all the aspects of vocational education (training, education, and development), self-education and self-development of a learning individual in a specific system of social relationships. We assume that we should not limit the effect of vocational pedagogy only to the level of vocational education, i.e. it is of special importance at both pre-vocational level (vocational orientation, supplementary education in the form of art, music and sport schools as well as other schools) and after finishing the cycle of education in a vocational education establishment. We should not forget that a modern person who follows the trends of professional mobility can raise his professional level at any capable age depending on his personal needs.

We assume that the main aim of vocational pedagogy today is to elaborate a theory of developing a mobile and competent individual who has value norms and professional, general cultural and other competences; i.e. to establish a competent and educated individual who can work, create, and develop himself.

In this approach, the notion “professional competence” – one of the central notions in vocational pedagogy – is of special importance. Professional competence is defined as an “integral characteristic of specialist’s business and personal qualities, which reflects the level of knowledge, skills and experience sufficient for achieving the aims of professional activities and individual’s social moral position” (Slastenin, 2004). Vocational pedagogy is not only the science of vocational education, but also the science of education, development and self-development of professional and personal qualities.

We find it possible to offer a definition based on the anthropological approach: vocational pedagogy is a pedagogical science of the regularities in the establishment and development of a competently developed personality in the system of vocational-educational social relationships.

We should dwell on such characteristics of our definition as the laws of pedagogy and the regularities of vocational pedagogy. It is impossible to have an efficient pedagogical practice without analyzing the laws, regularities, principles and rules of pedagogy. For the last decades, pedagogical regularities, principles and rules have been studied in the works of Yu.K. Babansky (1983), M.A. Erofeeva (2006), B.I. Zagvyazinsky & I.N. Emelyanova (2012), G. I. Ibragimov (2014), I. Ya. Lerner (1980), P.I. Pidkasisty (2002), I.P. Podlasy (2003) etc.

Pedagogy is traditionally treated as a science of the laws and regularities of education, training, socialization and person’s creative self-development. M.A. Erofeeva (2006) assumes

that "...a pedagogical *law* is a pedagogical category, which denotes objective, essential, necessary, general, and sustainably repeated phenomena in certain pedagogical situations, and relationships between the components of a pedagogical system, which reflects the mechanisms of self-arrangement, functioning and self-development of an integral pedagogical system."

A *regularity* in social processes (in our case, in the educational process) is treated as an objectively existing, necessary, repeated, and essential relationship between the phenomena and properties of the objective world, when changes in some phenomena cause certain changes in other phenomena, which describe their progressive development. In this context, we can discuss both the relationships inside the educational, pedagogical process and the relationships between different social spheres of life. In other words, *regularity in the educational process should be treated as dialectics in the relationships between economy, politics, spiritual life of society and education for developing all the above elements.*

Scientists assume that pedagogy is ruled by dynamic and statistic laws. If we know the initial state of a pedagogical system and the external conditions of a pedagogical process, we can forecast its further changes using the dynamic laws. The statistic laws reflect certain tendencies in the change of a pedagogical system, which are revealed by means of statistic methods of a pedagogical research. Nowadays, it is important to take into account the effect of all the laws of pedagogy for further projecting of anticipated changes, since there are increasing demands for changing the educational paradigm in both vocational (a competence paradigm; practice-focused education; project activities etc.) and general education (including the ability to attend college or even university simultaneously with finishing the cycle of studying in school; project education; refusal from the class-and-lesson system etc.) All this should be properly reflected and comprehended in the theory of a pedagogical science.

Referring to history, we should mention that ancient scientists Plato, Aristotle, and Quintilian formulated their requirements to teaching, but not to the integrated process of education. Modern science has a notion of teaching. Besides, it formulated the regularities of teaching in the system of general and vocational training, education, and development. However, no research of the regularities in vocational education and vocational pedagogy as a science has ever been conducted. In antiquity, scientists were not engaged in the issues of teaching, since they treated teaching rather as a craft, an art of teaching other sciences than as a science, and art is not subject to laws. Many of these rules are still in force today, for example: "the aim of a teacher is to help a pupil to generate a thought in his head" (Socrates); (Not every person

can educate, but only he who is aware of appropriate techniques and mental conditions of learner's life" (Quintilian).

In the 18th century, J.A. Comenius (1658) was the first to represent didactics as a system of rules, "Basic rules of natural learning and teaching: visualization, naturalness etc." J.A. Comenius (1658) offered to divide the regularities into general and private; he revealed about fifty regularities. A. Diesterweg (1858) reported thirty three rules of teaching. J. A. Comenius (1658) and A. Diesterweg (1835) had some followers who tried to present didactics as notes consisting of rules grouped around quite narrow topics: how to prepare oneself for lessons, how to pose questions, how to reinforce the material etc.

I.G. Pestalozzi (1803) was one of the first to report opening a new law of child's mental development "...from vague contemplation to clear representations and further to clear notions." F. Fröbel (1826) assumes that the aim of education is to give every child an opportunity to become a developed individual instead of preparing children to a particular position or teaching them their profession from an early age. This is only possible if we forge integral relationships between thinking and action, cognition and acts, knowledge and skills. K.D. Ushinsky (1867) hardly used the terms "law" and "regularity"; however, he made brilliant generalizations, for example, "The more real knowledge the mind acquires and the better it processes them, the more developed and stronger it is." (Ushinsky, 1867) All these ideas of our predecessors remain relevant for modern pedagogy as well.

Some scientists assume that the main law of a pedagogical process is that growing generations certainly acquire the social experience of older generations (Slastenin, Isaev & Shiyanov, 2007); they treat regularity as the determination of content, forms and methods of pedagogical activities by the development of productive forces of society as well as appropriate industrial relationships and a superstructure (Andreev, 2013).

Scientific literature formulated the laws of pedagogy:

- *integrity and unity of a pedagogical process* (it reveals part-to-whole relationships in the pedagogical process, the need for harmonious unity of rational, emotional, communicative, search, meaningful, operational and motivational components);
- *unity and relationships between the theory and practice of training*;
- *educative and developmental training* (it reveals the proportions of acquiring knowledge, ways of activities and all-round development of an individual);
- *social determination of aims, content and methods of training* (it reveals the objective process of a crucial impact of social relationships and social structure on the development of all the elements of education and training) (Erofeeva, 2006).

Basic laws are related to specific laws, which are manifested as pedagogical regularities. Like laws, they can be general and special. In most cases, scientific literature reports the following regularities of training:

1. The *efficiency of training* directly correlates to learner's interest in scientific activities, the number of training exercises, and the level of learners' cognitive activity. It depends of the level of memory development (width, depth, and strength).
2. *Jost's regularity*. Other things being equal, it requires fewer trials to memorize the material by means of massed practice than by means of distributed practice to achieve the criterion of learning (Erofeeva, 2006).

All the above laws and regularities are intrinsic of the pedagogy of both general and vocational education. S.Ya. Batyshev (1997) was the first to discover seven laws of vocational pedagogy that underlie the training of qualified workers. This the knowledge of production types, for which workers are trained – the production type is used to define the production profile of a worker; the knowledge of the level of mechanization and automation of production processes – the level of mechanization and automation of production processes enables to define the content of workers' labor; knowledge of the degree of technological processes continuity – the degree of technological processes continuity enables to define the forms of labor organization; knowledge of the state of labor organization – the state of labor organization enables to define the duties of workers; the knowledge of equipment structure and labor items applied in a labor process – the knowledge of the equipment structure and applied items enables to define workers' specialization; knowledge of federal and regional components in the content of vocational technical education – a few changing elements and the elements that are subject to relatively quick changes in the content of labor and, therefore, in the content of workers' education, require dividing the vocational training into two uneven parts: basic (set for many years) and dynamic, i.e. special, which is calculated for the period corresponding to an incomplete cycle of equipment change; knowledge of basic relationships between comprehensive and vocational training of learners – it enables to create the system of knowledge and skills in various disciplines in learners. It is obvious that all the above regularities reflect ties and relations in the system of vocational education. It is quite expected, since vocational pedagogy has been long treated as a science of vocational training. However, we will bear in mind that the notion “training” is not equal to the notion “education”, since education involves other important process of individual's education and development. Therefore, both laws and regularities of vocational education and vocational pedagogy as a science of vocational education will have their peculiarities.



Basing on general and special laws and regularities of pedagogy, let us try to formulate the specific regularities of vocational pedagogy. It is clear today that they are caused by drastic changes in society, economy and the development of an individual in the beginning of the 21th century.

1. More complicated economy, industry, production of goods and services as well as production of a human as a productive force of society require training a highly technological and professionally competent individual. It is rather the development of professional competences than the development of knowledge and skills that come to the foreground. The demands for being ready to new types of activities and new technologies are the basis for the success of a professionally competent individual in a modern information society.

2. As the information flow is enhancing and becoming more complicated now, we need to develop a new type of thinking in general (including vocational thinking), which is characterized by responsibility for personal and collective labor; the product of material and spiritual production; creativity and flexibility; ability for critical analysis and ability to systematize the information received. This refers to professional thinking in both productive and non-productive sphere, especially in the sphere of human production (in education).

3. Since vocational education has a prognostic function, it has to implement the educational programs for training specialists that would be demanded in modern production now and in future basing on the proportion of vocational and educational standards. Complication of production results in the complication of vocational education; however, vocational education should outrun production instead of catching up with it.

4. The more complex and the more technological production, the more important is the role of professional competences of highly qualified workers who, in turn, receive education in the system of vocational education. This mutual dependence defines a special role of a pedagogue of vocational training and education.

Thus, there emerges a chain of cause-and-effect relationships: hi- technology production – highly qualified specialists with specially developed vocational thinking – a high level of vocational education aimed at the final result (employment) – a high level of training among the pedagogues of vocational training and vocational education. We should only bear in mind that the primary element in this chain is vocational pedagogical education, which is designed to provide high-technology production by training highly qualified pedagogues who will educate highly qualified specialists in all the spheres of material and spiritual production. We need a master pedagogue to train a master for the production; a professional creates a professional.

In conclusion, we can note that vocational pedagogy went through some stages in its development: an ontological stage (*accumulating* the empirical material of vocational education); a gnoseological stage (*studying* the accumulated empirical experience, making theoretical generalizations), and a reflexive stage (analyzing and generalizing the empirical and theoretical material of vocational pedagogy itself; revealing its peculiarities as a theory and methodology of vocational education). In other words, the study of vocational pedagogy at the modern stage can be described as a part of the science of science, which studies the very nature and essence of science. Now, we can say that vocational pedagogy is at the threshold of a new stage, which can be defined as phenomenological, since vocational pedagogy is represented as an original phenomenon, which is self-sufficient within a framework of an open social system and capable of dynamic self-development.

Now, vocational pedagogy is of value for:

- an individual (the establishment of general cultural and professional competences, creative thinking, and value orientations);
- economy (training a professionally competent individual, a new type of a worker);
- society (awareness of a special role of vocational pedagogy in the system of vocational educational relationships in society and its social structure).

#### 4. DISCUSSIONS

The study of scientific works on the relationships between economy and education as well as theory and methodology of vocational pedagogy enables to define the lack of special scientific research devoted to revealing the regularities in the development of vocational education and vocational pedagogy. Besides, we have found no works reflecting the effect of the formulated laws in the system of vocational education in the historical aspect and at the modern stage of its development.

However, in our research, we used many works devoted to the relationships between economy and education in general and studies devoted to the analysis of the laws and regularities of education in general. This enabled us to pass from the general to the specific in analyzing the issue under study and to make certain conclusions within a framework of our topic. Thus, A.A. Kyveryalg (1980) wrote that vocational pedagogy has its signs: 1. systematized notions and regularities; 2. specific methods; 3. hypotheses that are subject to control. The author also reports that such notions as vocational technical education, vocational training and education, vocational orientation, job training etc. are specific notions of scientific vocational pedagogy (Kyveryalg, 1980).

Since then, we can name the text-book *Professionalnaya Pedagogika (Vocational Pedagogy)* edited by academician S.Ya. Batyshev (1997), which was published in the 1990s and republished in 2010, and the text-book edited by academician A.M. Novikov (2010), which was published in 2010. The first one mostly focused on training teachers in vocational colleges and in the workplace. Although the text-book was titled *Vocational Pedagogy*, it was actually the pedagogy of vocational technical (elementary vocational) education. Historically, the pedagogy of elementary vocational education, the pedagogy of intermediate vocational education and the pedagogy of higher education developed separately, on their own. Academician S.Ya. Batyshev (1997), the founder of vocational pedagogy, assumed that “...its essence is studying the regularities of training, education, and development of a student, elaborating the principles of training, education, and information and pedagogical technologies, and justifying the types of vocational educational establishments and the system of their management.” (Batyshev, 1997).

However, we should admit that in the last revision of the text-book, vocational pedagogy was represented as a special pedagogical industry, and attempts were made to reveal the specific subject and to define the methods of vocational pedagogy. Vocational pedagogy is defined as a science of training an individual for his vocational activities, vocational education of a new generation of workers and specialists, and the production of quality workforce (Novikov, 2010). The pedagogy of vocational education or vocational pedagogy is understood as the area of theoretical and practice-oriented scientific knowledge that *extends to the entire system of person's professional training* irrespective of his age, level of previous education, objects, character and profile of labor and professional activities (Novikov, 2010). This understanding of the essence of vocational pedagogy was an important step forward in the justification of this science as an independent field of pedagogy.

*Entsiklopediya Professionalnogo Obrazovaniya (The Encyclopedia of Vocational Education)*, which was edited by S.Ya. Batyshev (1999), treats vocational pedagogy broader, as “...a science of general and specific laws and regularities, peculiarities, principles, rules and conditions of education, training and development of the personality of a professional specialist...” The drawback of this definition is that it is incomplete in the context of enlarged characteristics for the signs of defined notion; besides, it fails to address the issue of the laws and regularities of vocational pedagogy.

The followers of some approaches report that vocational pedagogy studies regularities, gives theoretical justification, and elaborates principles and technologies of human training and education focused on a particular vocational sphere of reality. Depending on vocational field,

they distinguish between military, engineer, production, medical pedagogy etc. (Bulanova-Toporkova, 2002). We can agree with some of the signs in these definitions of vocational pedagogy, since they reflect general approaches and principles of human vocational education. However, some of them draw the following objections: these approaches, principles and technologies should not be only aimed at a particular sphere; they should be common for any sphere of vocational reality.

The definition in the dictionary *Professionalno-Pedagogicheskie Ponyatiya (Vocational Pedagogical Notions)* compiled by G. M. Romantsev, V. A. Fedorova, I. V. Osipova & O.V. Tarasyuk (2005) is the closest to our understanding, “Vocational pedagogy is a field of pedagogical knowledge, which studies aims, means, conditions and potentials of the vocational training of young people and the regularities of development and education of an individual in the situation of professional realization.”

The aim of this paper was to reveal the role of special regularities of vocational pedagogy, to reveal the specifics of their effect in a modern situation, and to define the requirements to a worker in compliance with the educational and vocational standards in the Russian Federation now basing on the available results of scientific studies.

## 5. CONCLUSION

In our research, we formulated the definition of the notion “vocational pedagogy”, revealed the meaning and role of vocational education and its relations to modern vocational education, and defined the perspectives from interaction and development.

The materials of this paper may be of use for professors of the system of vocational education in defining the strategy for the development of a learning individual, creating the individual trajectory of his development, planning the development and establishing of general cultural and professional competences etc.

The results of the study are important for the representatives of legislation activities in vocational education for creating and improving educational and professional standards, bringing them into line with the objective factors of vocational education development as well as with subjective factors – requirements to a developing learning individual and the development of his professional thinking.

During the research, there occurred new questions and problems to be solved. We need to continue and to deepen the research on the manifestation of these regularities of vocational pedagogy and vocational education in a modern economic situation of society development

and subjective factors of the development of a learning individual, namely, the development of the professional thinking of a future specialist and a professional.

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