

# Pedagogy and Psychology

P.K. Vlasov

## **Strategies of Reducing Uncertainty (Case Study of Nuclear Power Station Operators)**

*Key words and phrases:* algorithmic analysis; coefficient of reducing uncertainty; operational class; operators; strategy of reducing uncertainty.

*Abstract:* The author considers strategies of reducing uncertainty in the work of nuclear power station operators, where poorly defined tasks can become a safety hazard. Having analyzed algorithms composed by operators, significant differences in the operators' individual preferences in strategies of reducing uncertainty were identified. All of them overestimated the significance of motoric and communicative actions and underestimated the meaning of sensory and logical ones. These facts are of special interest for the analysis of operators' erroneous actions, for the development of special programs of training for uncertain tasks.

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O.O. Gorshkova

## **Opportunities Incorporated in the Federal State Educational Standard of Higher Professional Education to Develop Future Engineers' Readiness to Research Work**

*Key words and phrases:* activity approach; competence; competence approach; engineer; readiness for action research.

*Abstract:* The paper identified a number of principles underlying the FSES HPE third generation; the authors outlined the factors that affect the successful implementation of FSES HPE in the educational process of engineering universities; the main features of FSES HPE conducive to training students for research activities, have been analyzed; the case study of direction 131000 "Petroleum Engineering" has been examined.

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L.K. Ilyashenko, L.M. Meshkova

## **A Conceptual Field of Competence Approach: Competence, Competency, Mathematical Competence, Professional Competence**

*Key words and phrases:* competence; competency; mathematical competence; professional competence.

*Abstract:* In recent years, competence approach has become the de facto standard in the field of education in Russia and many Western countries. It allowed educating competent and competitive professionals in their field. The authors define the concept of «mathematical competence», present theoretical analysis of the concepts «competence» and «competency» and determine their intrinsic differences and relationships.

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Z.V. Kabryushkina, D.V. Lifintsev

## **Experience of Social Contacts as a Factor of Emotional Development at Preschool Age**

*Key words and phrases:* child's emotional development; cognitive development; emotional perception; emotional self-regulation; interpersonal contact; preschool age.

*Abstract:* The article analyzes the problem of the formation of the child's emotional sphere in contact with adults and peers. It is argued that particular importance has an ability of an adult to help a child to express their emotions through movements, mimic movements and verbal recognition of their experience.

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M.A. Kanaev, S.M. Malakutskaya

## **Case Method to Optimize the Educational Process in Humanities**

*Key words and phrases:* audio-visual materials; case method; humanities; musical education; optimization; problem-situational training.

*Abstract:* The article describes the relevance of application of case method in the development of performing skills in the process of professional musical education.

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# Professional Training

D.V. Paydukov

## **Formation of Aesthetic Competence of Future Bachelors of Pedagogical Education in «Fine Arts»**

*Key words and phrases:* aesthetic competence; bachelor; competence; teachers' training; training.

*Abstract:* The article reveals the essence of development of aesthetic competence of future

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bachelors of pedagogic education in «Fine arts» at teachers' training university. The author examines the concepts «competence», «aesthetic competence» and refines definitions of «competence» and «aesthetic competence». It was concluded that development of aesthetic competence of future bachelors of pedagogical education in «Fine arts» is one of the most important task.

E.S. Poltavtseva, M.A. Dziuba

### **The Main Management Trends in Professional Education in Europe**

*Key words and phrases:* government regulation; management; management levels; normative act; public policy; system of professional education; centralization and decentralization of management.

*Abstract:* In the article, the author examines the main trends in management of professional education in Europe as one of the most extensive and important spheres of human activity, which is intertwined with all other spheres of public life: economy, politics, material production and spiritual life.

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## **History, Philosophy and Sociology**

A.S. Zhulaeva

### **Legal Foundations to Change the Status of Women in Soviet Society (Case Study of the Siberian Region)**

*Key words and phrases:* domestic women's emancipation; equality of rights; public education of children; socio-political views; social awareness.

*Abstract:* The authors examine the legal foundations of changes in the status of women in Soviet society. By the example of the Siberian region the process of forming a new solution of the concept of "women's issue" in the first decades of Soviet rule is studied. This work reveals the gender aspects in the history of the Siberian village, the evolution of social attitudes, public awareness and consumer culture of rural women.

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V.V. Kalitskiy

### **Reflection of N.A. Berdyaev's Cultural and Philosophical Beliefs in Music Axiology**

*Key words and phrases:* civilization; culture; musical art; music axiology.

*Abstract:* The article considers some cultural and philosophical views of N.A. Berdyaev and their reflection in music and axiology. The author reveals the genesis of the crisis of culture in the XX–XXI centuries as a result of loss of aesthetic and ethical guidelines of human rights, as well as transformation of the kernel values in musical performance. Special emphasis is placed on the need to preserve and multiply the cultural heritage of humanity.

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E.O. Samoylova, Yu.M. Shayev

### **Concepts «Good» and «Evil» in the Discourse of Computer Games: Semiotic Aspect**

*Key words and phrases:* computer games; concepts; evil; good; linguistic culture.

*Abstract:* In this article we analyze the concepts of good and evil and their representations in the modern computer games. The good and evil are represented not only as a mental structures, but also as symbolic phenomena which have a special connotation. The both concepts are the base of the game system, without which it is impossible to image the game structure.

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A.K. Sitdikova, B.M. Yagudin

### **Fight for Iraqi Oil in the 1960–1970s**

*Key words and phrases:* government A.H. al-Bakr; Iraq; oil companies; Soviet Union.

*Abstract:* The article examines the history of the struggle of the Iraqi peoples for the nationalization of the oil industry in the 1960–1970s. We can see the evolution of relations between Iraq and the Soviet Union. Special attention is paid to the methods of struggle of the government A.X. al-Bakr with foreign oil companies.

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## Philology

R.V. Bukchaeva

### **National-Cultural Specificity of the Concept “Respect” in Buryat Speech Communication**

*Key words and phrases:* directional associative experiment; concept; verbal communication; speech stereotype.

*Abstract:* In the present article the concept ‘respect’ is analyzed in the Buryat language picture of the world. In particular, the concept “respect” is considered as the communicative principle representing a difficult socio-cultural phenomenon and element of communicative consciousness of members of this society.

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## Engineering

A.S. Vasiliev, I.R. Shegelman, P.O. Shchukin

### **Some Guidelines on Increasing of Wedge Valve Repairability**

*Key words and phrases:* main piping; nuclear power plants; repairability; wedge valve.

*Abstract:* The authors describe the results of a patent search in the field of improving wedge valve repairability for nuclear power plants and main piping.

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## Mathematical Methods and Models

D.B. Vladimirova, A.L. Derevyankina, A.R. Zhenetl

### **Measuring Stability of Isothermal Drawing of Optic Fiber**

*Key words and phrases:* drawing of optical fibers; stability.

*Abstract:* The questions of measuring stability of isothermal drawing process in a simple uniaxial tension of a Newtonian fluid with constant viscosity were considered. The drawing process is described by a system of differential equations in private derivatives. In order to study the stability of the system the linearization was made, the method of separation of variables and the finite-difference method were applied. Dependence of the stability of the process on frequency rate of an extract, on Reynolds’s number, on Froude’s number and on Weber’s number was revealed, and also the algorithm of establishment of stability of process was fulfilled..

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D.B. Vladimirova, M.Kh. Khusnullina

### **The Analysis of Simulation Results in the Optimal Control of the Drawing Process of Quartz Optical Fibers**

*Key words and phrases:* distributed systems; drawing of optical fibers; mathematical modeling; optimal control.

*Abstract:* The comparison was obtained in the problem of the optimal control over the inductive heating in the production process of optical fibers with different sample profiles.

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A.D. Mokhov, O.G. Mokhova

### **Generator for Robot Motion Software Systems of Arbitrary Structure**

*Key words and phrases:* control systems; inverse problem; mathematical modeling; robotics; software motion.

*Abstract:* This paper describes a method for the generation of programmed motion of robotic systems of arbitrary structure. The authors described a method of specifying software motion through the law of motion of feature points. The technique of using a generator as part of the program motion control system has been utilized. Experimental results on the control over the manipulator-tripod have been discussed.

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**On Boundary Value Problem for a Quasilinear Functional Differential Equation**

*Key words and phrases:* boundary value problem; functional differential equation.

*Abstract:* We have established an attribute for the existence of solution and for the existence of a unique solution of a nonlinear boundary value problem  $(\Lambda x)(t) = f\left(t, \int_a^b x(s) d_s R_0(t, s)\right)$ ,  $t \in [a, b]$ ,  $x(a) = \alpha$ ,  $x(b) = \beta$  in assumptions: operator  $\Lambda: W^2 \rightarrow L_M$  is defined by equality  $(\Lambda x)(t) = x''(t) + \int_a^b x(s) d_s R_1(t, s)$ , functions  $R_1: [a, b] \times [a, b] \rightarrow R^1$  and  $R_0: [a, b] \times [a, b] \rightarrow R^1$  are measurable in the square  $[a, b] \times [a, b]$ ; full variations  $\int_a^b R_1(t, s)$  and  $\int_a^b R_0(t, s)$  are integrated in absolute value on  $[a, b]$ ;  $R_0(t, s)$  does not decrease by  $s$  in almost all  $t \in [a, b]$ ; function  $f: [a, b] \times R^1 \rightarrow R^1$  satisfies the conditions of the Caratheodory spaces:  $f(t, u)$  measurable in  $t$  at all  $u$  and is continuous  $u$  for almost all  $t \in [a, b]$ .

M.A. Sevodin

**Dynamic Systems of Leontief Type Restricted on the Intensity of Production Processes**

*Key words and phrases:* bulge; economy; intensities; production set; trajectory.

*Abstract:* This paper examines the dynamic model of Leontief type of economy. The author studies the situations with the restrictions on the intensity of basic industries. We solve optimization problem consisting in determining the maximum possible stock of goods at the final moment of time. The existence of optimal trajectories of intensities endowed with the properties mainline type has been proved.

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## Information Science

A.A. Kulikov, A.E. Melkov

**Introduction of Jet Concept into Elastic Graph Algorithms to Improve the Quality of Recognition**

*Key words and phrases:* elastic graph; jet; recognition.

*Abstract:* Labeled graph is the basic object of representation for elastic graph algorithm. The edges are labeled with information about the distance between nodes, and nodes are labeled with the local responses of the wavelet transform, which are conventionally called jets.

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## Ecology and Nature Management

L.A. Erofeevskaya

**Bioremediation of Permafrost Soils Using Native Microorganisms in Conditions of Yakutia**

*Key words and phrases:* bacteria; biological products; degradation; ecology; environmental safety; hydrocarbonic pollution; microflora; microorganisms; oil; oil products; soil.

*Abstract:* In conditions of the field experiment we conducted studies to examine the impact of native microorganism on the intensification of biodegradation processes of oil waste by enrichment culture method. It was established that over one northern summer the oil content in the plots treated with enrichment cultures decreased to 36.3–54.3 %. At the same time, immobilization of enrichment cultures on the zeolite has given a reduction of oil pollution to

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71.8–99.4 % for the same period of time. Thus, the immobilization method of enrichment culture of indigenous microorganisms on the zeolite is more effective for bioremediation of permafrost soils of Yakutia.

V.Yu. Polyakov

#### **Detection of Temperature Treatment of Natural Honey under Its Modifications and Falsifications**

*Key words and phrases:* falsification of honey; honey; natural honey; quality indicators of honey; thermal treatment of honey.

*Abstract:* The author studies the influence of thermal treatment on such quality indicators of natural honey as diastatic number and mass fraction of hydroxymethylfurfurol (HMF). The opportunity of utilizing these physical-chemical parameters as indicators of thermal treatment of natural honey under its modifications and falsification has been shown.

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## **Economic Sciences**

M.A. Vaykok

#### **Principles of Forming the Organizational Structure of Industrial Enterprises under Business Processes Optimization**

*Key words and phrases:* business processes; company organizational structure; process management.

*Abstract:* The paper presents the main characteristics of the organizational management structures. The author considers the issue of optimization of business processes as a necessity due to the development of macro-and micro-environment. The essential qualities and principles of company management structure were determined.

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A.N. Gasanov

#### **The Development of Tourism in Azerbaijan and Its Influence on Socio -Economic Development of the Country**

*Key words and phrases:* socio-economic development; tourism; tourism organization.

*Abstract:* The article discusses the importance of developing tourism and its integrated economic management in addressing regional problems. In particular, the economic foundations of tourism, as well as the direction of the economic potential in this area are an important task. This is due to the fact that the development of tourism plays an important role in the growth of economic, socio-demographic level, including the standard of living of the population.

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E.N. Egorova

#### **Environmental Externalities of Regular and Emergency Types: Methods of Internalization**

*Key words and phrases:* environmental externalities; methods of internalization of environmental externalities; Pigou taxes.

*Abstract:* The author proposed a scientific discussion of externalities associated with their negative impact on the environment. The environmental externalities were classified on the basis of the occurrence of pollution into two types – permanent ones and those caused by accidental emissions (discharges) of pollutants. The possibilities of internalization of the selected types of environmental externalities were studied. Attention was focused on the economic tools of internalization of environmental externalities.

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A.A. Isaev, L.A. Isaeva, K.A. Kotomanova

#### **Combating Irrational Needs**

*Key words and phrases:* consumption resources; emotional theory of sales; human potential; irrational advertising; personal consumption; rational needs.

*Abstract:* The article emphasizes that the main imperative of the formation and development of human potential is the formation of reasonable needs. Since the structure of personal consumption and its optimization play an exceptional role in conditions of limited consumption resources, the struggle against the development of irrational (foolish) needs should be one of the functions of government bodies.

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V.R. Kabirov, E.I. Reyshakhrit

### **The Model to Optimize the Number of Clusters for the Development of the Group of Geographically Contiguous Deposits of Metal Minerals**

*Key words and phrases:* economic-geological cluster of deposits; group of deposits; metallurgical complex; metal minerals; processing complex; optimization models.

*Abstract:* The authors describe a model to optimize the number and location of industrial complexes for groups of metal deposits. The model is based on the obtained ration between transporting distances and production costs of industrial complex. The optimization model reduces the amount of capital costs (investment) of deposit development through the creation of a single industrial complex for deposits within the economic-geological cluster.

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N.G. Larkina

### **Genesis of Marketing Paradigm in Spatial Interaction**

*Key words and phrases:* economic space; marketing; marketing information systems; marketing interaction concept; performance evaluation of marketing potential.

*Abstract:* The article analyzes the development of a new marketing paradigm for spatial economy; it proves the importance of information technology in the marketing concept of interaction. Also, it examines the needs to measure the effectiveness of marketing interactions in economic space.

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T.O. Moroz

### **Overall Integrated Assessment of Rural Areas Sustainable Development**

*Key words and phrases:* comprehensive assessment method; comprehensive assessment of development; integrated index assessment; rural areas' sustainable development.

*Abstract:* A comprehensive assessment of rural areas' development involves examination of economic, social and environmental processes. The technique of measuring integrated index assessment of rural areas' sustainable development is based and grounded on the existing concepts and approaches

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L.I. Muratova, A.V. Aralov

### **Essence and Assessment of Innovation in Regional Economy**

*Key words and phrases:* assessment; effectiveness; flexibility; indicators (indexes); innovative activity; possibilities; regional economy; results; technology.

*Abstract:* The paper examines the matters of the essence of innovative activity, characterizing its aggregate indicators and specific ones developed and implemented on the materials of Russian regions, assessment technology of innovation opportunities and results, reproductive efficiency of regional economy development.

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G.N. Sarishvili

### **Corruption in European Union and Russia: Sources and Challenges of Counteraction**

*Key words and phrases:* anticorruption code of conduct; corruption; financial crime; manual management of economy; OLAF functions; power elite; separation of power from business.

*Abstract:* The article examines the approaches in the European Union to combat widespread corruption and financial crimes. The experience of anti-corruption activities is relevant to Russia. Manual management of the economy has become the main source of corruption in Russia.

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N.V. Shiryayeva, A.S. Vasilyeva

### **Features of Company Profitability Analysis**

*Key words and phrases:* analysis; profitability; revenue and profitability.

*Abstract:* This paper presents the analysis of company profitability in terms of profit and profitability indexes for the retail company OOO "SOVET", a horizontal-vertical profit analysis has been made, factors affecting the profit from sales have been identified, and the analysis of cost-effectiveness has been made. These approaches allow you to determine the factors that have negative impact on profitability, and most importantly they enable to identify and justify profit and profitability reserves of the company.

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## Legal Science

I.M. Vilgonenko, Yu.A. Titenko

### **Problems of Tax Evasion and Ways of their Solution**

*Key words and phrases:* reforming; tax evasion; tax legislation; taxpayer; tax policy.

*Abstract:* The paper considers the budgetary and tax policy of the state, problems of tax evasion. Legal, political, economic, moral and technical causes of tax legislation infringement have been analyzed. The directions of tax policy of the Russian Federation established by the state for the planned period up to 2016 are considered. Possible solutions of problems of tax evasion have been proposed.

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V.P. Lebedinskaya, V.A. Lebedinskaya

### **On International Adoption Issue**

*Key words and phrases:* children; family law; international adoption; international agreements; obligation; rights; retaliatory action (retortion) in family law.

*Abstract:* The article presents the legal analysis and assessment of the Federal law of December 28, 2012 “On measures against persons involved in violations of fundamental human rights and freedoms, rights and freedoms of citizens of the Russian Federation”, prohibiting adoption of Russian children by U.S. citizens. The authors express their opinion on Russian actions in the Institute of International Adoption.

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V.E. Trofimova, I.A. Klimova

### **Current Issues in the Theory of Functional Systems in Law**

*Key words and phrases:* functional system; law; law-making; meta-theory; structure; system; system-forming factor; theory.

*Abstract:* The application of the Anokhin theory of functional systems to the analysis of the legal system faces a number of pressing questions unanswered, for which the further development of the theory of law with a systems perspective is not possible. In this paper, an attempt is made to find possible solutions to this problem.

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## Materials for Discussion

I.V. Antsiferova

### **Compatibility Features in Nanotechnology Research Teams**

*Key words and phrases:* compatibility; creativity; motivation; nanotechnology; psychological climate; research team.

*Abstract:* The article describes the options for the analysis and measurement of compatibility in research teams involved in nanotechnology studies.

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