



INTERNATIONAL CONFERENCE

PROCESS MANAGEMENT AND SCIENTIFIC DEVELOPMENTS



Birmingham
United Kingdom



International Conference "Process Management and Scientific Developments"

Birmingham, United Kingdom
(Novotel Birmingham Centre, May 2, 2020)



Materials of the International Conference
"Process Management and Scientific Developments"
(Birmingham, United Kingdom, May 2, 2020)

M67

ISBN 978-5-905695-36-0

These Conference Proceedings combine materials of the conference – research papers and thesis reports of scientific workers. They examines technical and sociological issues of research issues. Some articles deal with theoretical and methodological approaches and principles of research questions of personality professionalization.

Authors are responsible for the accuracy of cited publications, facts, figures, quotations, statistics, proper names and other information.

UDC 330

ISBN 978-5-905695-36-0

©Scientific publishing house Infinity, 2020

© Group of authors, 2020

CONTENTS

ECONOMICS

The practice of using an innovative digital platform for the optimal treatment of cancer patients

Kostina Tatyana Anatolyevna, Noakk Natalia Vadimovna,
Larin Sergey Nikolaevich.....9

Company human capital development based on OKR methodology

Kostina Tatyana Anatolyevna, Akimkina Daria Alexandrovna,
Sokolov Nikolay Alexandrovich.....17

A study of the systemic relationships of staff turnover in educational institutions with the development of intellectual capital in the regions

Bobko Tatyana Vladimirovna, Petrova Tatyana Viktorovna.....22

Current problems of work with the talent pool

Petrishchenko Natalia Mikhailovna, Shepeleva Larisa Sergeevna.....31

The influence of internal and external factors on trends of the socio-economic development of the Russian Federation

Pobedushkina Victoria Alexandrovna, Melekhina Tatyana Leonidovna.....37

The main trends of development of mechanical engineering in modern Russia

Afanasiev Alexander Anatolievich, Shamatov Indus Kashipovich,
Shulus Alexey Appolinaryevich.....44

Evaluation of the prospects of innovative investment projects in the energy sector

Pyataeva Olga Alekseevna, Sharnopolsky Boris Petrovich, Shamatov Indus Kashipovich,
Koroleva Elena Vladimirovna.....50

JURISPRUDENCE

The value of law in Russian philosophy of law (B. A. Kistyakovsky)

Frolova Elizaveta Alexandrovna.....57

PEDAGOGICAL SCIENCES

Comparative Analysis of Sino-Russian Cooperation in Higher School Project Models

Luo Wanqi.....61

The role of distance learning technologies in teaching a foreign language at a university Fyodorova Olesya Viktorovna.....	67
Socio-pedagogical support of interpersonal conflicts among teenagers Nurgaliyeva Dolores Abildaevna, Azimbayeva D.K.....	76
Preparation of master's students for pedagogical activities in educational ecosystems Taranova Tatyana Nikolaevna.....	83
Digitalization of education as a condition for the training of masters Vezirov Timur Gadzhievich, Umargadzhieva Navrat Magomedsaidovna.....	88
The structure of running exercises of long jumpers and its role in the training process Galukhin Rudolf Mikhailovich.....	95
Development of flexibility of children engaged in taekwondo Galukhin Rudolf Mikhailovich.....	105

PHILOLOGICAL SCIENCES

«Lone wanderer» of Russian literature

Kurbatova Olga Alekseevna, Ryabova Anastasia Yurievna.....	111
--	-----

Lexical interaction of the modern Greek language with Germanic and Romance languages (with reference to the vocabulary of English, French and modern Greek languages)

Igor V. Boichuk, Irina O. Eshchenko, Natalya I. Kupina, Elena V. Lukyanova, Zhanna A. Bubyreva.....	116
--	-----

Translation of proper nouns in videogames in English-Russian language pair

Saiakhova Dinara Kamilevna, Fatkullina Flyuza Gabdullinovna.....	122
--	-----

Metalanguage substantiality German and Russian fairy tales

Nechay Yuriy Petrovich, Poverennaya Anastasiya Alexandrovna.....	127
--	-----

PHILOSOPHICAL SCIENCES

The person as the representative of regional culture of Transbaikalia in terms of objectivistic approach

Terteshnikova Natalya Demyanovna.....	134
---------------------------------------	-----

From "The Risk Society" – to the Sustainable Development Model

Popkov Vladimir Ivanovich.....	139
--------------------------------	-----

HISTORICAL SCIENCES

The Balance of Threats in the NATO-Russia Relations during the Post-bipolar Period Smaglo Pavel Nikolayevich.....	146
The role of the United Nations in the process of settlement of the Syrian conflict Azimov K. S., Nizomiddinkhujayev O. R.....	151

SOCIOLOGICAL SCIENCES

Digital society and blockchain technologies Borisova Elena Vladimirovna, Mitin Nikolay Alekseevich.....	155
--	-----

PSYCHOLOGICAL SCIENCES

Assessment the motivations of the older (veterans athletes) for doing kettlebell sport Daniliuk Svetlana Vladimirovna.....	161
Analysis of the dynamics of demand for competency clusters (managerial, cognitive, achievements and actions) for middle management Znamenskaya Alexandra Nikolaevna, Noakk Natalia Vadimovna, Kostina Tatyana Anatolyevna.....	171
Analysis of the dynamics of demand for competency clusters (help and service of others, impact and influence, personal effectiveness) for middle managers Znamenskaya Alexandra Nikolaevna, Noakk Natalia Vadimovna, Khudoley Galina Serafimovna.....	178

POLITICAL SCIENCES

Strengthening international discursive power as a channel for China's successful participation in the new world order after the COVID-19 pandemic Lai Lingzhi.....	185
---	-----

MEDICAL SCIENCES

Clinical proteomics: new technological platform for diagnostics and treatment of diabetic kidney disease Vagif M Ibraghimov, Michail M Batjushin, Irina V Sarvilina, Galimat V Gadzhieva.....	189
Data processing and decision making in psychiatry based on the Analytic Hierarchy Process Mitikhin Vyacheslav Georgievich.....	200
The impact of the meal sequence on the compensation of type 2 diabetes Alikhanova Nodira Mirshovkatovna, Takhirova Feruza Abrarovna, Isamukhamedova Istiora Sandjarovna.....	207

Assessment of physical development, body composition and lipid profile in adolescents Krukovich Elena Valentinovna, Tumanova Natalya Sergeevna, Bondar Galina Nikolaevna.....	211
---	-----

Multiple sclerosis. Possible options for the onset of the disease in a clinical example Markovska Olena, Tovazhnyanska Olena, Lapshyna Iryna, Nadozirna Yevheniia.....	220
---	-----

BIOLOGY

3-D models of hair cells of stamens filaments of two species of Tradescantia (Tr. Pallida and Tr. Blossfeldiana) Budantsev Arkadiy Yustianovich.....	225
--	-----

ARCHITECTUREY

Management of historical residential development projects Nabiev Ramazan Abdulmuminovich, Zeynalov David Balakshievich, Agaragimov Askhab Agagulovich.....	232
--	-----

TECHNICAL SCIENCES

Influence of sheet material thickness on the quality of the cutting surface during narrow-jet air-plasma cutting of carbon steel Anakhov Sergey Vadimovich, Guzanov Boris Nicolaevich, Pugacheva Natalia Borisovna.....	241
--	-----

Analysis of the efficiency of plasma afterburning for gaseous products of hazardous waste processing Anakhov Sergey Vadimovich, Matushkin Anatoliy Vladimirovich, Kharina Galina Valerianovna.....	251
---	-----

Calibration of video surveillance systems using multidimensional information representations Oleynik Ivan Ivanovich, Tsurkan Arseniy Nikolayevich.....	260
--	-----

EARTH SCIENCES

Analysis of geometrization in the Micromine software environment at the Natalka gold deposit Kurbatova Veronika Vladimirovna.....	265
---	-----

AGRICULTURAL SCIENCES

Improving the design of milk separators Kakimbek Islambek Muhanbetzhanuly, Issintaev Takabay Issintayuly, Ushakov Yuri Andreevich.....	273
--	-----

A STUDY OF THE SYSTEMIC RELATIONSHIPS OF STAFF TURNOVER IN EDUCATIONAL INSTITUTIONS WITH THE DEVELOPMENT OF INTELLECTUAL CAPITAL IN THE REGIONS

Bobko Tatyana Vladimirovna

Senior Lecturer
Siberian State Industrial University,
Novokuznetsk

Petrova Tatyana Viktorovna

Doctor of Economic Sciences, Full Professor
Siberian State Industrial University,
Novokuznetsk

Abstract. This article explores the reasons for the turnover of teaching staff, shows the relationship between the dynamics of staff movement and the deterioration in the quality of training of students. The novelty of the study lies in the fact that with the help of a tripartite approach, a systematic relationship of educational processes with the formation of intellectual capital of the regions is shown. A causal relationship has been established between the turnover of young high school teachers and the formation of the intellectual potential of the regions.

Empirical basis: a set of documents reflecting staff turnover in state educational institutions.

Research methods: theoretical review and synthesis of scientific data, analysis of statistical data. When processing the results, methods of mathematical statistics were used.

The result of the study is establishment of a direct relationship between the turnover of young secondary school teachers and the formation of intellectual capital in the regions.

The study is of great practical importance for managerial practice in the formation and adjustment of measures aimed at reducing staff turnover, in particular, state educational institutions.

Keywords: staff turnover, education, human resources, region, intellectual capital.

Over the past few years, the problem of the turnover of young teachers has been of great interest to researchers. In any organization, the negative consequence of staff turnover is a decrease in the economic and social ef-

iciency of its activities [6]. However, in the case of educational institutions, the factor of the formation of the future intellectual potential of the region by teachers [2] becomes significant.

The aim of the study is to use the example of secondary schools to analyze the main factors that provoke high turnover of teaching staff and substantiate the systematic relationship between staff turnover and the formation of the region's intellectual potential.

The results of studying this problem over many years and finding the main source of high turnover of teachers, as well as the reluctance of young teachers to work at school, became the basis for the application of different methods of managing the situation in Russia: economic - increasing wages and stimulating payments; organizational - improving working conditions; socio-psychological - increasing the prestige of the profession, self-realization and self-affirmation of teachers as participants in various competitions, including "Teacher of the Year", etc. However, this did not bring the desired effect. The shortage of teachers in schools of the Russian Federation is 11%.

Upon dismissal, employees of various organizations name such reasons for staff turnover [2]: poor-quality selection of employees; lack of career progression; incorrect adaptation system; dissatisfaction with the management methods of the organization; low pay; adverse working conditions; dissatisfaction with the psychological atmosphere in the team and others.

HR - portal. ru, regularly conducting surveys of employers to the above reasons adds [7]: dissatisfaction with the profession; mismatch of the scope of work and the level of the position; uncomfortable schedule; dissatisfaction with the social package; location of work relative to place of residence.

The problem of the relationship between the turnover of young teachers and the decline in the quality of intellectual capital in the regions was studied from the perspective of three stakeholders: 1) the administration of the municipality (region); 2) a budgetary educational institution; 3) teachers.

This approach to addressing the problem is caused by internal and external factors affecting the development of the education system. The main regional environmental factors for the school are:

- the overwhelming majority of teachers work in public schools that are under municipal jurisdiction; therefore, the demand for teachers is set by the state depending on the financial capabilities and the demographic situation in the region;

- remuneration is ensured by cash inflows from local budgets, 1st category remuneration is tied to the minimum wage, which has a different value by region (not lower than the federal minimum wage from 1.01.2020 - 12130 rubles). So, for example, in the Kemerovo Oblast from January 1, 2020, the minimum wage is set at 15,769 rubles for budgetary organizations (taking into account the district coefficient) and for commercial organizations and individual entrepreneurs –21471.45 rubles [3], in Moscow - 20195 rubles, in the republic of Khakassia 19408 rubles, in St. Petersburg - 19000 rubles, etc.

Other external factors affecting the functioning of the education system as an employer (budget educational institution) compared with enterprises and organizations of other sectors of the national economy include:

- determination of the number of teachers in schools on the basis of standard school programs, the normative load per teacher and the number of students, which may vary from year to year;

- impact on teachers of the regional labor market. In all federal Okrugs of Russia, school wages are below the average wage in the region. According to the Federal State Statistics Service for 2019, the average nominal wage in Russia amounted to 47,468 rubles, while "education and science" were among the lowest paid groups of mass professions - 26,300 rubles [1]. At the same time, according to the Federal State Statistics Service, seven percent of education workers received less than 11,280 rubles (minimum wage in 2019), and twenty percent received less than 15 thousand rubles a month. A similar situation is developing in the regions of our country. The analysis of indicators by region revealed a trend - the average salary of school teachers is 15-25% lower than the regional average. In the case of young teachers, this gap is much larger. Also, according to a review of the statistics reviewed, we can conclude that the richer the region where the institution is located, the greater the gap between the average salaries of teachers in different territories.

The consequence of the turnover of young teachers is the lost opportunity to form an innovative intellectual potential of the region:

1) from the point of view of the region's economy - the lack of young teachers trained in modern teaching methods will lead to the inadequate formation in school students of the competencies required for the development of the region. According to VTsIOM, 47% of Russian graduates prefer to work in a field that is not related to education, due to low wages and high academic workloads;

2) from the point of view of a budgetary institution - this means excessive spending on staff recruitment and adaptation of employees, disrup-

tions in the educational process, disruption of the transfer of experience to young employees, a decline in the prestige of an educational institution, and a decrease in interest in student learning;

3) from the point of view of the teacher, this is a decline in the moral and psychological mood of a person who has left the desired professional activity, forced to master an unfamiliar profession and build relationships with new colleagues.

As the research base, we have chosen secondary school №35, located in Penza. According to official data presented on the school's website, the number of 1st grade students is growing every year [8]. The teaching staff of the school - 51 people. A qualitative analysis of the teaching staff allows us to speak about a high educational level of the teaching staff: 94% of teachers have higher education and 6% have secondary special education.

The structure of employees by teaching experience is presented in table 1.

Table 1 The structure of employees by teaching experience, %

Indicators	Indicator values						
Work experience	up to 1 year	up to 5 years	5-10 years	10-20 years	20-25 years	25-30 years	30 -40 years
Structure, %	9,8	5,9	13,7	9,8	7,8	13,7	39,3

Based on table 1, we can note the uneven presence of people of different ages (more than 50% of teachers over 50) and the aging of the teaching staff. This suggests that the development potential of the institution, which is traditionally associated with the age of workers under 40, is about 30%.

Identical dynamics are observed throughout the country and are confirmed by RANEPa studies. According to their monitoring of effectiveness in Russian schools, 56.6% of teachers have experience of more than 20 years, and only 8.13% of teachers have experience of up to 3 years [5].

Similar information was specified by the former Minister of Education of the Russian Federation, O. Vasilyeva, who indicated that only 5% of young specialists currently work in schools [9]. According to the forecasts of the Russian Ministry of Education, in 10 years the shortage of teachers can reach up to 190 thousand people.

The study identified external and internal motivators that facilitate the decision to leave school. Three groups of reasons are distinguished:

- 1) internal factors for an educational institution (inadequate workload, unfair pay structure, conflicts);
- 2) personality factors (dissatisfaction with working conditions, conflicts);
- 3) factors external to the educational institution (wage rates, uncompetitive with regional average).

Against the background of the identified causes of staff turnover due to external and internal factors, the quality of knowledge received by students demonstrates a downward trend. The quality of knowledge is understood as the correspondence of learning objectives to their results. The quality of knowledge is evaluated in accordance with a set of criteria established in pedagogical practice, for example, completeness, depth, systematic, systematic, awareness of the application of knowledge and others. Table 2 presents the results of the analysis of student performance over the past 5 years [8].

Table 2 The quality of students' knowledge on the stages of school education

Stages of education	Years					
	2014	2015	2016	2017	2018	2019
Primary school	59,1	61,1	56,3	57,1	60,2	55
Middle school	34,8	37,9	34,6	32,4	29,8	30
High school	23,6	46,4	27,1	41,1	33,3	28,3
Around school	43	47,8	42	42	41,2	38

Based on table 2, we can conclude that over the past 5 years (from 2015 to 2019), the quality of knowledge has fallen: - in primary school - by 10%; - in middle school - by 20.8%; - in high school - by 39%; - the average for the school is 20.5%.

Table 3 presents the dynamics of the average exam score for core subjects of 2019 compared to 2018, which also has a downward trend.

Table 3 Dynamics of the average USE score compared to 2018

Mathematics (core.)	Russian language	Social science	Informatics and ICT	Physics	Chemistry
-1,03	-4	-7	-1,63	+2,6	+1,5

Negative dynamics is observed in continuing education after the 9th grade - an ever smaller number of students extend their education in the 10th grade of the school and choose institutions of secondary vocational education (SVE).



Figure 1 - Dynamics of the proportion of graduates who continued their studies after grade 9

The graph shown in Figure 1 shows that if in 2016 more than 30% of graduates continued to study in the 10th grade, then in the 2018/2019 academic year, only 20%.

In this school, according to the all-Russian trend, the proportion of ninth-graders who continue to study in secondary school continues to decline, and the percentage of those who choose to study in the SVE system for training programs for middle managers continues to increase.

Also, a smaller number of 11th grade graduates enter higher education institutions. Figure 2 shows the trends in the choice of an educational institution after the end of 11 classes, which shows that about 10% of graduates of the 2018/2019 academic year chose SVE.

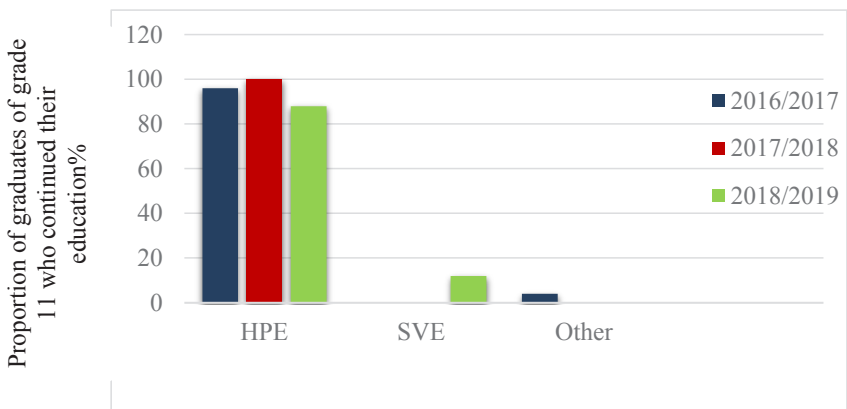


Figure 2 - Dynamics of the proportion of graduates who continued their studies after grade 11 in various educational institutions

As can be seen from Figure 2, a fairly new tendency has formed for our society, when 11th grade graduates enter schools for secondary vocational education.

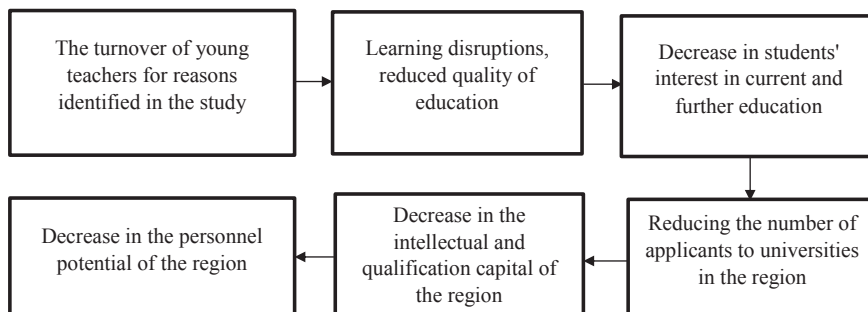


Figure 3 - Causal relationship between the processes of staff turnover of young high school teachers and the formation of the intellectual potential of the region

Note: developed by the authors

Thus, a causal relationship between the turnover of young secondary school teachers (similarly to secondary vocational education and higher education teachers) and the region's intellectual potential is presented in Figure 3.

And at the present stage, for the development of an innovative economy, the regions really need high-quality intellectual resources:

- scientific and engineering personnel trained in the field of inventive and innovative activities;
- specialists trained in economics and management (innovation management);
- personnel with knowledge in the field of security and protection of the results of intellectual activity.

The analysis revealed a systemic relationship between the processes taking place in the educational system and the formation of the personnel potential of the region. Such a relationship is shown in Figure 4.

As a result of the study of systemic connections, it was found that there is a direct correlation between the turnover of young high school teachers and the formation of the region's intellectual potential.

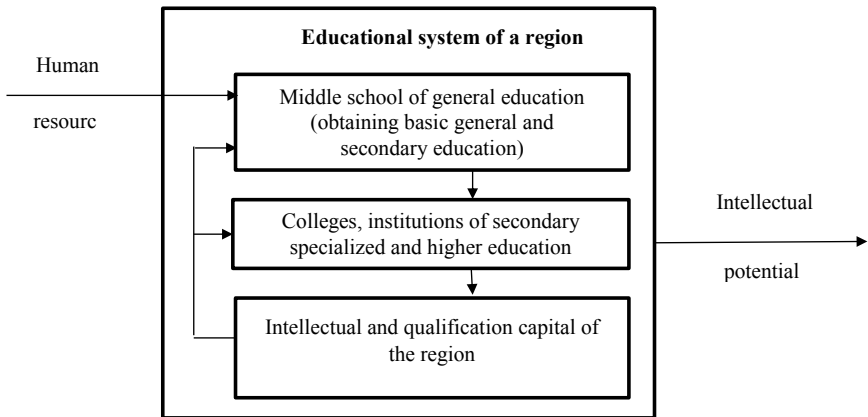


Figure 4 - System connection of educational processes with the formation of the personnel potential of the region

Note: developed by the authors

References

- 1 Labor market, employment and wages. Federal State Statistics Service - URL: https://www.gks.ru/labor_market_employment_salaries?print=1
- 2 Bachkova M.Ya., Bobko T.V. Problems of formation of personnel potential on the basis of undergraduate / Actual problems of economics and management in the XXI century: coll. sci. art. Part I / Sib. state. ind. un-ty. - Novokuznetsk: Publishing center of SibSIU, 2015. P. 250-254.
- 3 Kuzbass regional agreement between the Kemerovo oblast union of trade union organizations "Federation of Trade Union Organizations of Kuzbass", the Board of the Administration of the Kemerovo Oblast and employers of the Kemerovo Oblast for 2019-2021 dated January 17, 2019 N 1. - URL: <http://docs.cntd.ru/document/550327370>
- 4 Kuchkartaeva A. "Why do I need a mentor?": How to help a novice teacher avoid professional burnout [Electronic resource]. - URL: <https://skyteach.ru/2019/11/01/zachem-mne-mentor-kak-pomoch-prepodavatelyu-novichku-izbezhat-professionalnogo-vygoraniya/>
- 5 School performance monitoring. Teachers of Russian schools: problems and prospects / ed. T.L. Klyachko – M.: Russian Academy of National Economy and Public Administration under the President of the Russian Federation, 2019. – 20 P.

6 Nevedina K.E., Ustyugova V.I., Bobko T.V. Problems of staff turnover at the enterprise / Actual problems of economics and management in the XXI century: coll. sci. art. Part 2 / Sib. state. ind. un-ty. - Novokuznetsk: Publishing center of SibSIU, 2017. P. 120-125.

7 Platinina N. Turnover: causes and effect, ways out of the situation [Electronic resource]/ N. Platinina. - URL: <http://hr-portal.ru/article/tekuchest-kadrov-prichiny-i-sledstvie-puti-vyhoda-iz-situacii>

8 Public report of MBEI MSGE №35 of Penza for the 2017-2018 academic year. - URL: http://school-35.ru/school_pabl_otchet.html

9 Shakhmatov V. The main reasons for the lack of teaching staff in Russian schools / IA Express-News from 03.08.2019. - URL: <https://express-novosti.ru/society/2147499716-ozvuchenyi-osnovnyie-prichinyi-nehvatki-pedagogicheskikh-kadrov-v-rossijskikh-shkolah.html>

Scientific publication

**International Conference
“Process Management and Scientific Developments”**

Birmingham, United Kingdom
(Novotel Birmingham Centre, May 2, 2020)

Signed in print 06.05.2020 г. 60x84/16.
Ed. No. 83. Circulation of 500 copies.
Scientific publishing house Infinity, 2020.