

THE IMPACT OF INTERNAL STRATEGIES OF HUMAN RESOURCES MANAGEMENT ON THE PERFORMANCE OF THE UNIVERSITY

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Abstract

Modern universities are at the core of the development of the territory in which they are located. However, they and their staff (scientific and pedagogical personnel) are subject to serious performance requirements. The efficiency of educational institutions is taken into account by such indicators as educational activity, research activity, international activity, financial and economic activity and employment of graduates. In order to solve the strategic tasks, set for the university, a human resources strategy has been developed to encourage scientific and pedagogical personnel to increase the publishing activity and a strategy to employ candidates with high educational and scientific competence into the scientific and pedagogical personnel. The authors have analyzed the impact of HR strategies on the effectiveness of research activities of the university teaching staff. It was found that the implementation of internal competitiveness development strategies allowed the university to improve both qualitative and quantitative performance indicators. The indicators have increased not only due to the internal potential of research and teaching staff, but also due to the employment of the highly qualified professionals, while determining certain risks in the implementation of strategies.

Key words: efficiency of the university, scientific and pedagogical staff of the university, publication activity, HR strategy

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Introduction

Recent decades have seen significant transformations in higher education around the world. With the globalization of higher education, the role of universities in territorial development is increasing. The challenge for universities is to adapt to changes in the external environment as they create competitive advantages (Enders, 2004). The key factor of competitive success is the reputation of the higher education institution in the internal and international space. Competitiveness, efficiency, and innovativeness directly depend on the development and

implementation of internal human resource management strategies (Rehman & Iqbal, 2020; Duan, 2019). Thus, a special strategic view of the processes of formation, attraction, use, involvement, development, retention and release of human resources is needed (Albrecht, Bakker, Gruman, Macey, & Saks, 2015). The state has set the goal of the university operation as a business structure for which the issues of economic efficiency and competitiveness are a priority. Universities can become key economic pillars of regions or entire countries (Mohammed, Hafeez-Baig, & Gururajan, 2018).

The main methods of the research consisted of the analysis of statistics, analysis of the legal base, including the analysis of local bylaws of the university, defining the internal strategies of human resources management, estimation of efficiency indicators of the university activity, secondary analysis of internal statistics. The authors analyzed the scientific and publishing activities of research and teaching staff since 2011 and evaluated the effectiveness of their activities based on the analysis of the number of articles affiliated with the University (UrFU), in the Scopus and Web of Science databases, monitored the publication activity of research and teaching staff of the University, described the main mechanisms to stimulate these activities.

Research hypothesis: the comprehensive human resources strategy of the three-level motivation and encouragement for the SPP and the highly qualified specialists results in: increased rate of the University publications, indexed in Scopus and Web of Science databases; to the university's annual rise in the QS rankings; to strong differentiation of the personnel salaries; to the managerial risks in the implementation of the HR strategies.

1 Results

Today, there are 1314 higher education institutions in Russia, 21 of which are participating in the federal program to support the largest Russian universities "5-100". For this purpose, a program to increase the competitiveness of the Urals Federal University has been developed, which is implemented in several human resources strategies through various motivational mechanisms of influence on scientific and pedagogical personnel (SPP) of the university (Parshakov & Shakina, 2018). The concept of Human resource assumes financial investments in human resources, support and growth of quality of such resources within the strategy of development of educational organization. Strategic Human Resource Management (SHRM), together with the business strategy of the company, forms organizational views, behaviors,

which, in turn, contribute to better innovation, initiative (Moustaghfir, El Fatihi, & Benouarrek, 2020).

On the one hand, SHRM makes it possible to achieve high results by developing a methodology, with the appropriate measurement, to influence organizational performance (Bailey, Mankin, Kelliher, & Garavan, 2018; Aboramadan, Albashiti, Alharazin, & Dahleez, 2020). The organizational indicators of the university form an entire system, reflecting the activities of the university in various directions (Khalyasmaa & Zinovieva, 2017). One of the organizational indicators is the publication activity of the SPP of the university. Therefore, the personnel strategies, designed to strengthen the university position in the international rankings of universities have been developed to solve the strategic tasks set for the university. The first one, the personnel strategy, focuses on the stimulation of the SPP for the purpose of increasing their publishing activity. The second is a strategy to attract candidates with high educational and scientific competencies into the SPP.

On the other hand, SHRM sets the high requirements for the university personnel as the subject of research and development, for the implementation of publication activities, for obtaining grants for applied and fundamental research. The university's efforts are aimed at gaining a competitive advantage, and subsequently increasing profits, within the framework of SHRM. However, the downside of this process is that the SHRM, along with satisfaction from its own high performance, through wage differentiation, is experiencing high stress, anxiety, and declining health quality (Guest, 2017).

Finally, the resources: sources of generating, attracting and retaining scientific resources, and sources of funding. The University has adopted a course on maintenance of highly effective SPP, with continuation of stimulation of scientific and publishing activity, at the same time, competitive selection of faculty and competitive recruitment of students from among highly active youth. Today the Ural Federal University employs specialists from 16 countries such as the USA, Italy, Great Britain, China, India, Kirgizia, Ukraine, Belarus, Kazakhstan, Armenia and others.

1.1 Strategy to increase SPP publication activity

The issues of the efficiency of the university have been facing the management for a long time. To solve this problem, the motivational system of SPP stimulation started being applied in 2005. Today there is a three-level system of motivation at university. It targets scientific, publishing, educational, methodical and international activity of SPP: 1) Score-rating system of SPP stimulation. For a long time, it has been the only motivational tool to encourage the SPP to be

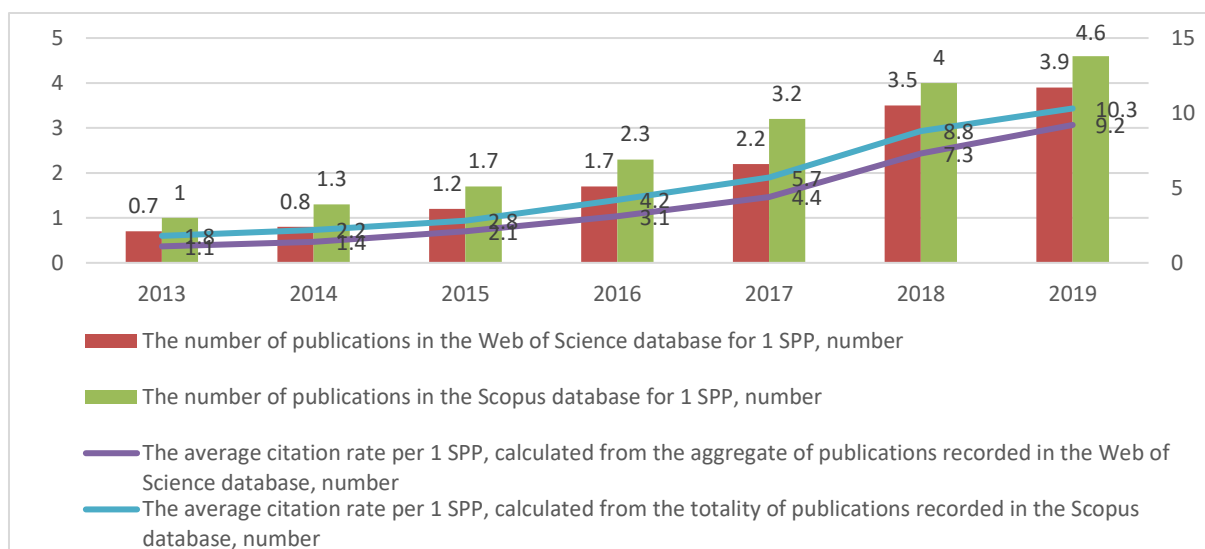
academically active. Score-rating system of the UrFU includes 39 indicators distributed in four sections: educational activities; research work; internationalization; other activities. Each year, additional participants wishing to monetize their achievements, join the incentive system. In 2017-2019, the number of participants in the incentive system has stabilized (Number of participants – 1911; The number of points for 1 SPP – 460). 2) The motivation system of publications in foreign scientific publications. In parallel with the SPP score-rating motivation system, the Ural Federal University has been implementing a system of incentives for publications in foreign scientific publications since 2011. This incentive tool was created in order to obtain a quick and tangible result in solving an urgent and long-term task of expanding a university's presence in the international scientific community. Publishing activity level is calculated as follows (1):

$$k_{pa} = p^1 \times 0.3 + p^2 \times 0.1 + p^3 \times 0.2 + p^4 \times 0.25 + p^5 \times 0.15 \quad (1)$$

k_{pa} – publishing activity rate; p^1 – the number of publications in Scopus/WoS during the last year; p^2 – the number of publications in the proceedings, accredited by the State commission for academic degrees and titles during the last year; p^3 – the number of citations per article, indexed in Scopus, over the past 3 years; p^4 – the number of publications, indexed in Scopus and WoS Q1-Q2 during the past 3 years; P^5 – Hirsch Index during the past 3 years.

The system of stimulation of publishing activity proved to be very effective and allowed to increase the number of authors of scientific articles 4.1 times, and the number of publications in foreign scientific publications in WOS base and 4.6 times in Scopus base 5.6 times (Fig. 1).

Fig. 1: Dynamics of publishing activity in WOS and Scopus databases



Source: compiled by the authors based on the analysis of WOS and Scopus database statistics

3) In 2015, Ural Federal University approved the Regulation on Effective Contract "Researcher", as a result of which the SPP motivation system was supplemented with a third element. An effective contract implied a special system of incentivizing employees to work by specifying in the employment contract the performance indicators of the SPP and the conditions of remuneration of labour when the established indicators are achieved. An effective contract provides the need to meet a minimum set of indicators on a post, a score mark of performance indicators and efficiency thresholds. The amount of activity compensation is calculated by the following formula (2):

$$A_s = \left(\sum_{n=1}^n TP \times 10 \right) \times k_c + k_{pa} \times 1000 \quad (2)$$

A_s – activity compensation; $\sum_{n=1}^n TP$ – total points score, based on 39 indicators of the score-rating system over the year; k_c – effectiveness factor 1.1 ÷ 1.3, depending on the position-based performance indicators above the efficiency thresholds; k_{pa} – publishing activity rate.

An effective contract started being widely used only in 2017 and was an additional motivational mechanism for the SPP, and in 2019 it covered about 90% of all SPP. The process of collecting and processing the growing body of information on scientific activities has been automated.

Table 1 shows the sample calculation of the salaries of the 3 groups of the SPP (assistants, associate professors, and professors), in regard of the three-level motivation system.

Tab. 1: SPP Salary, in regard of the three-level motivation system

SPP status	Base salary, rub. (min)	Score-rating system of SPP stimulation ($\sum_{n=1}^n TP$)		Researcher (effectiveness factor)		The motivation system of publications, (publishing activity rate)		Total salary, rub		Growth factor	
		mean	max	mean	max	mean	max	mean	max	mean/min	max/min
Assistant	16 055	189.8	1180.0	1.1	1.3	12.45	100.0	30 593	146 735	1.91	9.14
Associate professor	29 013	298.4	2905.0	1.1	1.3	26.8	267.0	59 095	333 778	2.04	11.51
Professor	41 072	605.6	2580.0	1.1	1.3	41.5	413.2	89 234	487 812	2.18	11.88
SPP (average)	28 713	364.6	2221.7	1.1	1.3	26.9	260.0	59 641	322 775	2.05	10.85

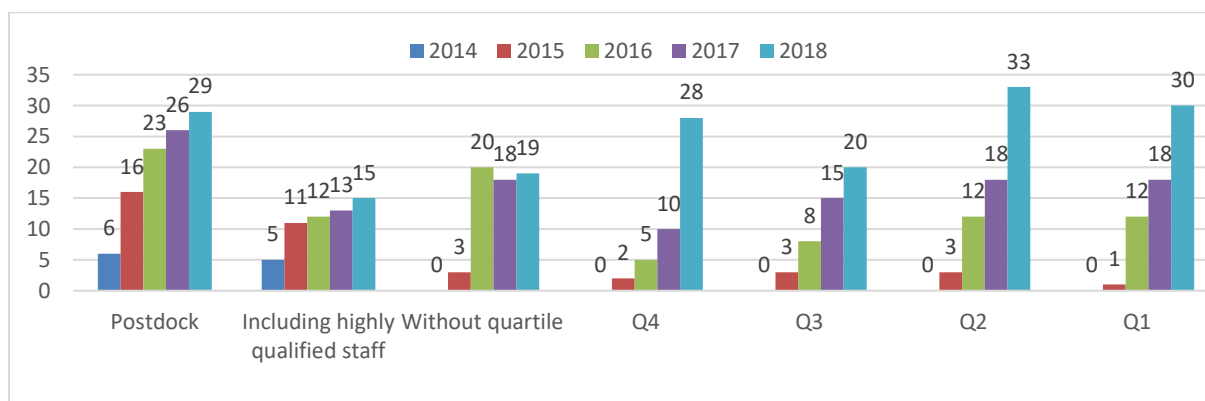
The table presents the calculated average and maximum values for the salary in each SPP group. The three-level motivation system provides the most active SPP with the

opportunity to increase their salary by 10.9 times, based on its base value (exclusive of the SPP status). The group of averagely active SPP grows 2.05 times. This encourages the SPP to the high publishing activity and allows the university to increase the amount of the highly rated publications.

1.2 Strategy for the development and strengthening of scientific personnel

Since 2014, the University has been employing highly qualified specialists – status scientists and young researchers with experience in leading foreign and Russian universities and scientific organizations. Currently, the University employs 29 foreign scientists in postdoc positions. We have studied their effectiveness on the basis of the evaluation of the number and quality of articles (accounting quartile of the journal), affiliated with the UrFU, in the databases of Scopus and Web of science.

Fig. 2: Dynamics of publishing activity of postdoc publications in WOS and Scopus databases



Source: compiled by the authors based on the analysis of postdoc publications in WOS and Scopus databases

We can see that postdoc incentive systems also have an impact on the performance of attracted staff, so if one postdoc in 2015 had only 0.75 articles per year in WOS and Scopus databases, in 2018 their index grew to 4.48, with publications in the journals of the first quartile (Q1) in 2015 being 0.06 per researcher, and in 2018 – 1.03. The ratio of publications in the journals of the first and second quartiles of postdocs is above the average for the university.

2 Discussions

Several human resource strategies are being implemented within the framework of Strategic Human Resource Management (SHRM) to ensure the leading position of the university within the framework of the Competitiveness Program.

First, it's a three-level system of motivation and stimulation. It is aimed at maintaining and developing the academic activity of the SPP, which should ensure stable development of educational, research and innovation potential in the university (Novgorodov, 2018). The three-tier system is dynamic, it is constantly being adjusted and updated to take into account strategic tasks that require an increase not only in the quantity but also in the quality of publications. The conditions and criteria for assessing their "cost" are being reviewed. In the beginning of this motivational system the primary goal was to attract as much SPP as possible and, in the end, generation of mass (large) number of publications. Therefore, the cost of articles in editions with low, including zero, impact factor has been artificially overestimated in the beginning, as new participants from among internal resources of the SPP entered system most often from publications in such journals. From year to year adjustments were more and more directed to increase differentiation of cost of articles depending on a level of the impact factor of the edition and increase in cost of articles in the most important scientific editions. So, today the policy of stimulation for the publications indexed in the international quotation databases, including WoS and Scopus, is in place, applying the strong differentiation of the payment amounts (more than 10 times) depending on IF of the journal, with restricted payments for the publications in the proceedings which do not have the impact factor. Thus, priority is given to support the most effective publications, in terms of increasing the recognition of UrFU in the international scientific community. The three-level system of motivation and stimulation of the UrFU gives a good growing effect and allows the university to systematically grow in international rankings of universities. As a result, the ratio of Ural Federal University publications indexed in the Scopus and Web of Science databases has increased by 15-20% annually over the past three years.

Secondly, the employment of the highly qualified specialists is a rather active strategy, implemented by the university. Thus, in 2013, the ratio of foreign professors, teachers and researchers from the total number of SPP, including Russian citizens who hold PhD degrees of foreign universities was only 0.4%. Over the past six years, their ratio has been growing actively and in 2019 amounted to 8.8% of the total number of SPP due to the implementation of the Postdoc Ural Federal University program to attract young qualified foreign and Russian scientists who hold PhD degrees from foreign universities into the university under a long-term employment contract. During the year, postdocs have significantly increased their publishing activity from 3.4 articles per scientist in 2017 to 5.2 articles per postdocs in 2018. In 2018, they published 130 articles, of which 30 were published in journals from the 1st quartile, 33 from Q2, 20 from Q3, 28 from Q4.

Undoubtedly, the efforts of the university have led to positive results in promoting the position of the university in international rankings. So, for example, in 2019 the university took 364th place in the general world ranking of universities QS, which shows the effectiveness of human resources management strategies implemented by the university. There are also some positive changes in the subject rankings of universities.

Tab. 2: University position on the QS ranking

Indicator	2013	2014	2015	2016	2017	2018	2019
World University Rankings, rank	550	600	601-650	601-650	491-500	412	364

Source: QS TOPUNIVERSITIES. URL: <https://www.topuniversities.com/university-rankings/world-university-rankings/2020>

Third, the analysis of the results of the competitiveness program through human resources strategies revealed the risks. Risk 1 – slowing down of growth rates of scientific productivity of the university SPP, and low growth of quality of scientific publications. For this purpose the additional mechanism of stimulation of high-quality articles (Q1-Q2) is enabled at university. Risk 2 – insufficient funding for the competitiveness program. The risk is insignificantly minimized through self-repayment through large-scale innovation projects, as the volume of R&D has grown by 25% over the last 4 years. Risk 3 – increased dissatisfaction of the SPP and stress due to increased burden and serious income differentiation. Growth of inequality within the university arises both horizontally – between SPP, and vertically – between SPP and top executives. Partially it is removed by measures of moral stimulation of SPP and measures of social support, including at the expense of the university trade-union.

Conclusion

The analysis revealed that in order to maintain growth of competitiveness of university and keep SPP activity in certain kinds of scientific activity, in our case publicational, the structure of indicators changes in the SPP stimulation systems: new indicators are introduced; active indicators are modified; a score estimation ("weight") of indicators changes; restrictions on indicators (the maximum number of billed points per account) are introduced or cancelled; indicators, on which the desired results have already been reached within the university, are excluded. To make the implementation of the competitiveness programme as effective as possible, the institution of higher education employs foreign specialists.

We found out what: 1) targeted measures to implement the competitiveness strategy have led to an increase in both qualitative and quantitative indicators of the publication activity of

scientific and pedagogical workers; 2) the growth rate of publication activity is 15-20% per year, while the quality of articles is growing due to an increase in the share of publications in journals with high IF; 3) high performance indicators of recent years have increased not only due to the internal capacity of the SPP, but also due to the employment of highly qualified specialists, as well as due to the fact that the number of publications has increased; 4) the three-level personnel motivation system allows the highly active SPP increase their salary by 10 times from the base value in the personnel group; 5) the risks of possible decrease in the efficiency of the university activity have been identified.

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