



Ways Of Determining The Competence Of Pedagogues And Calculating Factors Affecting It

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Abstract: the article considers ways to determine the potential of pedagogues and calculate the factors affecting it. In this way, the ways of determining the level of the potential of pedagogues, which is one direction of human potential, and the factors affecting its change, using the method of calculating the chain replacement method of economic analysis, the possibilities of making management decisions as a result of the calculation are revealed. **Key words:** potential, human potential, potential of pedagogues, higher education, factors, influence of factors, factor analysis, doctors of science, candidate of science, scientific degree.

Introduction. Relevance of the topic. Human potential is broadly understood and applies to people from all walks of life. Various professions among them also have their own potential. One of the most important of these is the scientific potential of teaching staff. In order for teachers to understand their scientific potential, it is necessary to take into account several main elements. These elements are aimed at increasing the effectiveness of teachers' work in the process of targeted education and upbringing. These include the following:

First of all, teachers must have a good grasp of theoretical and practical knowledge in their fields. This, in turn, requires in-depth study of their subjects and analysis of modern methods and technologies, and a deep knowledge of how to use them. It is also important that each teacher has a formed teaching style and the ability to use it and apply it effectively. This helps to determine methodological directions in the implementation of theoretical knowledge.

One of the distinctive features of a teacher is the presence of his ability to think creatively. The scientific potential of a teacher who has formed new ideas and the ability to think creatively is constantly increasing. Creative thinking also helps teachers find new directions in solving problems. To achieve this, teachers should also engage in research activities. The participation of a teacher in research and experimental work increases his scientific potential. Through research, a teacher can also develop methods for identifying problems in his discipline and solving them. Professional development is also one of the issues that teachers constantly pay attention to. In this way, they improve their professional skills and knowledge. This is reflected in the improvement of seminars, conferences and online courses. The teacher's ability to establish effective communication with students, understand and respond to their problems determines his communicative skills and helps to increase his scientific potential. In this sequence, the teacher's thinking and analytical abilities are also developed. Thus, teachers also strengthen their ability to analyze data, draw conclusions and justify their knowledge. To increase the scientific potential of teachers, it is necessary to understand the importance of these elements. This, in turn, will help to organize educational processes more effectively. These circumstances determine the urgency of this issue.

Research methodology. In the process of researching ways to determine the potential of pedagogical workers and calculate the factors affecting it, various methodological directions were used, in particular, such methodological approaches as induction and deduction, space and time, analysis and synthesis, quantity and quality, logical analysis.

Analysis and results. Human potential, as noted, is in a broad sense and applies to all professions and people. All professions among them also require the possession of their own potential. One of the most important of these is the scientific potential of pedagogical workers who educate the future generation. This potential has a measure. There are opportunities to





calculate measurable benefits, to assess their increase or decrease. In particular, we will examine the potential of this profession using the example of the dynamics of changes in the scientific potential of teaching staff of Bukhara State University over several years (Table 1).

Dynamics of the transformation of the scientific potential of pedagogical staff of
Bukhara State University in 2019-2024

Dukhara State Oniversity in 2017-2024										
Indicators	2019	2020	2021	2022	2023	2024				
1. Doctor of Science (DsC)	34	39	48	163	67	65				
2. Candidate of Science (PhD)	169	206	213	261	334	412				
3. Number of employees with	203	245	261	424	401	477				
scientific degrees, people $(11 + 21)$										
4. Number of employees with	504	582	597	714	427	318				
higher education										
5. Total number of teachers (31 +	707	827	858	1138	828	795				
41)										
6. Scientific potential, % (31 *	28,7	29,6	30,4	37,3	48,4	60,0				
100/51)										
6.1. Including people with	18	18	20	20	21	21				
disabilities										
7. Number of healthy potential	689	809	838	1118	807	774				
teachers (51-6.11)										
Share of competent teachers, %	97	98	98	98	97	97				
(71 * 100/51)										

This table shows that in 2019-2024, Bukhara State University mainly increased its human potential. In particular, the number of employees with scientific degrees increased by 235.% (477*100/203) during this period, that is, by 2.4 times. The university's scientific potential also increased from 28.7% in 2019 to 60% by 2024. The same happened with other indicators. It is worth noting that we think it is necessary to determine what factors influenced such a sharp change in the university's scientific potential. To do this, we will determine its level.

To determine the level of scientific potential of pedagogues (ISd), it is necessary to divide the number of employees with a scientific degree (Sid) by the total number of pedagogues (Ps). This is determined by the following formula:

pedagogues (Ps). This is determined by the following formula: $ISd = \frac{Sid}{Ps} = \frac{477 * 100}{795} = 60 \%; This is for 2024 year.$

The remaining years are given in the table. Now, it is possible to calculate the impact of a number of factors affecting the change in this indicator and draw specific conclusions. These factors include:

- the share of pedagogical workers with a scientific degree (Idp) in pedagogical workers with higher education (Omp) (Idp*100/Omi);

- the share of pedagogical workers with higher education (Omp) in healthy potential pedagogical workers (Sph) (Omp*100/Ssp);

- the share of healthy potential pedagogical workers (Sph) in the total number of teachers (Ps) (Sph*100/Ps);

The relationship between these factors can be expressed by the following formula:

$$Isd = \frac{Sid * 100}{Ps} = \frac{Idp * 100}{Omi} * \frac{Omi * 100}{Ssp} * \frac{Ssp * 100}{Ps};$$



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If we denote the result in this formula, i.e. "Isd" as "Y", and the factors are sequentially denoted as "X_i" the following multiplicative model between the result and the factors emerges:

 $Y = X_1 * X_2 * X_3;$ $\Delta \mathbf{y} = (\mathbf{X}_1^{x} * \mathbf{X}_2^{x} * \mathbf{X}_3^{x}) - (\mathbf{X}_1^{p} * \mathbf{X}_2^{p} * \mathbf{X}_3^{p});$ $\Delta \mathbf{Y}_{x1} = (\mathbf{X}_1^x * \mathbf{X}_2^p * \mathbf{X}_3^p) - (\mathbf{X}_1^p * \mathbf{X}_2^p * \mathbf{X}_3^p);$ $\Delta \mathbf{y}_{x2} = (\mathbf{X}_1^{x} * \mathbf{X}_2^{x} * \mathbf{X}_3^{p}) - (\mathbf{X}_1^{x} * \mathbf{X}_2^{p} * \mathbf{X}_3^{p});$ $\Delta \mathbf{y}_{x3} = (\mathbf{X}_1^x * \mathbf{X}_2^x * \mathbf{X}_3^x) - (\mathbf{X}_1^x * \mathbf{X}_2^x * \mathbf{X}_3^p);$ $\Delta \mathbf{Y} = \Delta \mathbf{Y}_{\mathrm{x1}} \pm \Delta \mathbf{Y}_{\mathrm{x2}} \pm \Delta \mathbf{Y}_{\mathrm{x3}} ;$

If we determine this calculation based on the table data, the following results can be achieved. We recommend making the following table for easy calculation (table 2).

Table 2.

	potential of pedagogical staff of Bukhara State University in 2019-2024									
Nº	ndicators	2019 year	2024 year	Recalculated indicators with a change in the factor		licators in the				
				1	2	3				
1.	The share of teaching staff with a scientific degree in teaching staff with higher education, $\%$ (X ₁) (3*100/41)	40,3	150,0	150,0	150,0	150,0				
2.	Share of highly educated pedagogic employees in healthy potential pedagogic employees, $\%$ (X ₂) (4l*100/7l)	73,1	41,1	73,1	41,1	41,1				
3.	The share of pedagogical staff with healthy potential in the total number of pedagogues, $\%$ (X ₃) (71*100/51)	97,5	97,4	97,5	97,5	97,4				
4.	Level of scientific potential of pedagogues,% (V) (11*21*31)	28,7	60,0	106,9	60,06	60,0				
	Difference and influence of factors	X	31.3	78.2	-46.87	-0.06				

Calculation of the determination of factors affecting the change in the scientific

The data in this table shows that the change in the scientific potential of teaching staff at Bukhara State University in 2019-2024 will be 31.3% (60.0 - 22.2). The impact of 3 factors affecting these changes was identified. This was calculated as follows.

1. The influence of the share of teaching staff with a scientific degree on teaching staff with higher education on the change in the level of scientific potential of pedagogues was 78.2%:

106.9 - 28.7 = +78.2 %

2. The impact of the share of highly educated pedagogues on the level of scientific potential of pedagogues in the pedagogic staff with healthy potential was negative and decreased by 46.8%:

60.1 - 106.9 = -46.8 %

3. Changes in the level of scientific potential of pedagogues and the change in the share of pedagogic employees with healthy potential in the total number of pedagogues reduced the result by 0.06%:

60.0 - 60.6 = -0.06 %

The effect of all factors was equal to the general change in the level of scientific potential of pedagogues:

78.2 - 46.8 - 0.06 = +31.3 %





Apparently The effect of all factors is equal to the change in the result indicator, that is, the level of scientific potential of teachers. This fact reflects both the mathematical relationships and the accuracy of the calculations.

The results of this factor analysis allow making management decisions on increasing the level of scientific potential of teachers. Calculations show that if the second factor, that is, the share of teachers with higher education in healthy potential teachers, were not negative, the result indicator would have been 78.2% (31.3 + 46.87) rather than 31.3%. Therefore, in the future, it will be necessary to develop appropriate measures to eliminate the negative impact of this factor.

Conclusion. In conclusion, in our country, great attention is paid to improving the scientific potential of teachers, which is an important area of human potential, and for this purpose, great attention is paid to improving education and upbringing. Because by 2030, Uzbekistan is expected to reach the level of developed countries in terms of economic development and the level of well-being of the population. This cannot be achieved on its own. To do this, it is necessary to implement a number of tasks related to increasing the scientific potential of teachers. In our opinion, these are the following:

Firstly, putting into practice the methods of determining the level of scientific potential of teachers will provide an opportunity to determine the rating of higher education institutions by this indicator. Therefore, we consider it appropriate to implement this recommendation in the practice of higher education institutions.

Secondly, we believe that it is necessary to identify the factors affecting the change in the level of scientific potential of teachers using the methods of chain exchange of economic analysis and to implement methods of making management decisions to increase the scientific potential of teachers.

In general, the implementation of these proposals will serve the fulfillment of the wideranging tasks aimed at ensuring the sustainable development of an innovative economy to ensure a free and prosperous life for our people, as envisaged in the "Uzbekistan - 2030" strategy, which is aimed at the formation of the Third Renaissance in New Uzbekistan.

References

1. Decree of the President of the Republic of Uzbekistan dated September 11, 2023 No. PF-158 "On the Strategy of Uzbekistan - 2030". LexUZ commentary.

2. Pardaev M.K., Pardaeva O.M., Pardaev O.M. Innovative models of strategic economic development. Monograph. / - T.: "Fan va tehnologiy publishing-printing house", 2022. – 228 pages.

3. Mamayunus Pardaev, Ozoda Pardaeva, Obid Pardaev Innovative models of Synergistic efficiency. LAMBERT academic Publishing, 2022. – 109 p. – 6.8 pp. https://www.lap-publishing.com/cover_playgrounds/oiancevskaia

4. Pardaev M.K. et al. Theoretical issues of categories related to human potential, human capital and innovation. Monograph. - T.: "Fan va tehnologiy nasriyot-matbaa uy", 2024. - 202 pages.

5. The world population has exceeded 8 billion. https://www.gazeta.uz/uz/ 2022/08/15/population/.

6. Pardaev M.K., Pardaeva O.M. Important factors in the formation of human capital and its role in the development of society. // Economics, management, service: modern problems and prospects. 2024. pp. 35-41.