IRSTI 06.56.02

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Innovations in the personnel training of the highest professional qualifications for universities in the Republic of Kazakhstan

Abstract. The contents of the article are the analysis results of scientific personnel training rate in the Republic of Kazakhstan since 1991. Particularly, attention is paid to the following parameters: the rate of change in the supply of universities with teachers with scientific degrees in Russia and Kazakhstan; the dynamics of the number of doctoral students (including doctoral students in the profile and PhD doctors) and postgraduate students, indicators of their graduation quality; performance indicators of candidates' scientific activities of the candidate of sciences scientific degree. The analysis of the listed parameters was carried out for 1991-2017 period. Indicators for a doctoral program are considered since the beginning of its functioning in the Republic of Kazakhstan. In the analysis course there are conclusions reflecting the specificity of trends in the indicators under consideration formulated. There are problems in the rate of scientific personnel training are identified and there are measures on their solution proposed.

Key words: scientific personnel, faculty academic degree, postgraduate students, doctoral students, PhD, candidates of sciences.

DOI: https://doi.org/10.32523/2079-620X-2019-2-151-161

Introduction. Today, one of the urgent problems in the system of higher education is to ensure high quality training of competitive specialists who are capable to effective work in the conditions of the Third Modernization of Kazakhstan. Considerable attention is paid to this issue in the Address of Elbassy N.A. Nazarbayev to the people of Kazakhstan. In the field of higher education, the process of university consolidation is expected to continue [1], further "cleansing" the market from educational organizations that are not able to provide students with high quality education which in turn is formed mainly due to the competencies of the faculty. The main quantitative indicator of the quality level of teaching staff in universities remains the percentage of teachers who have academic degrees. Trends in the change of this indicator, the pace of preparation of PhD doctors, doctors profile, doctors and candidates of sciences in the period under consideration deserve a separate study.

Task setting. Analysis of the dynamics and interrelationships of the listed parameters of higher and postgraduate education in the Republic of Kazakhstan, comparison with similar indicators of the Russian Federation is the main task of this article. Advances in training in both countries are the results of ongoing innovation and reform.

Research methods. The methodological basis of the study was the methods of statistical, graphical analysis, comparative historical analysis. The materials of the study were statistical data on the dynamics of the degree of teaching staff in the Republic of Kazakhstan and in the Russian Federation since 2000, the dynamics of training scientific personnel in the Republic of Kazakhstan since 1991, theoretical and analytical articles on the problems of the education development in the Republic of Kazakhstan in modern conditions. There were also data of legislative and regulatory documents of the Republic of Kazakhstan used.

Results and discussion. A number of reforms and innovative changes have occurred in the system of teaching faculty with scientific degrees. A radical step is the complete transition in 2010 to the system of training university personnel of higher qualification in PhD doctoral studies and the elimination of postgraduate and subsequent doctoral studies. The consequences of innovative measures are reflected in today's values of a number of quantitative and qualitative parameters

of universities. Currently, only half of teachers in the higher education system of the Republic of Kazakhstan have scientific degrees although in 2003-2013 period. There is a gradual increase in the level of this parameter watched (Figure 1). For comparison: in the Russian Federation the percentage of ATS availability with scientific degrees is much higher - about 75%.

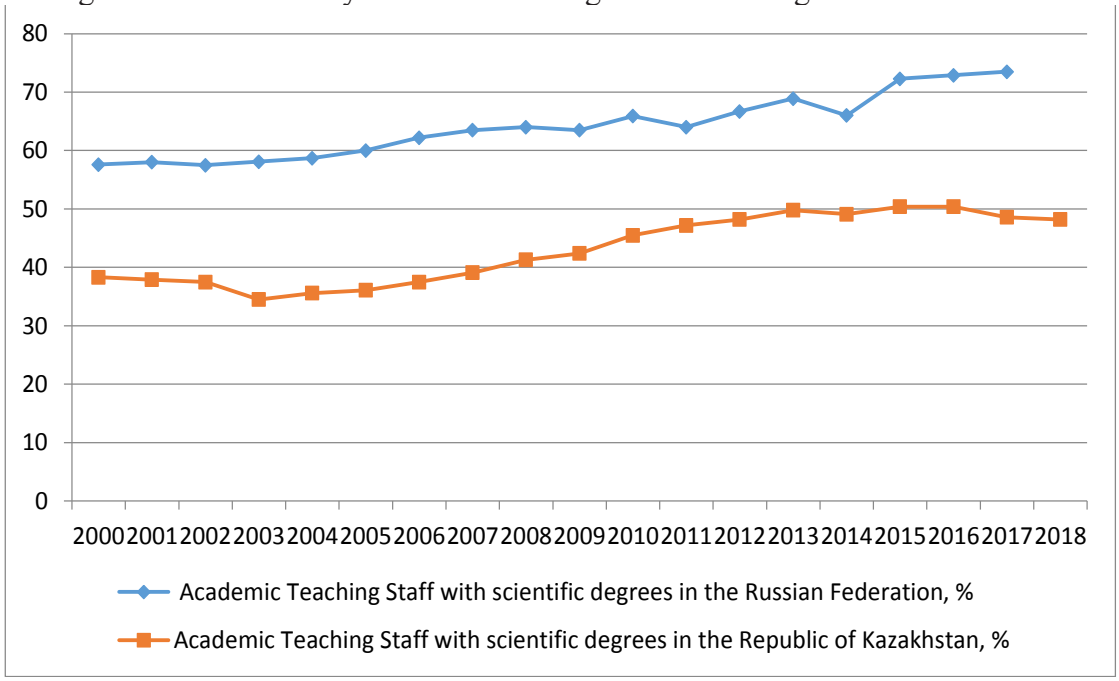

Figure 1 - **Dynamics of the universities' ATS proportion in the Russian Federation and in the Republic of Kazakhstan.**

Note - Compiled by the author on the basis of data [2], [3].

Currently, the degrees in the Republic of Kazakhstan include the degree of candidate of sciences, doctors of sciences, doctors' profile and PhD doctors. The last, initially academic degree "PhD Philosophy doctor" was awarded the status of a scientific degree in 2011. Until that time, only candidates of sciences, doctors of sciences belonged to the holders of a scientific degree whose preparation completely stopped at the beginning of 2011. In Russia, where, despite the accession to the Bologna Convention, the institute of postgraduate and doctoral studies has been preserved, the proportion of candidates and doctors of sciences among faculty members of universities is about 75 percents.

Changes in the field of education of the Republic of Kazakhstan were caused by the implementation of the Bologna Convention statements' realization to which Kazakhstan acceded in March of 2010. Although the process of gradual transition to the "bachelor-master – to PhD" three-level model began long before this point. Thus, the first undergraduates' admission was carried out by universities of Kazakhstan in 1996.

PhD doctoral programs realization began in 2005. Thus, from that moment until 2011, the country had two parallel systems for training scientific personnel and faculty of higher qualifications: soviet - in doctoral course and postgraduate course and western – in PhD doctoral course.

It is necessary to note one more form of the preparation of candidates and doctors of sciences training- through an application, by attaching to a department of a scientific research institute or a higher educational institution for conducting research and a dissertation preparation. It is necessary to note the significant contribution of this form to the training of scientific personnel (see Figures 2 and 3).

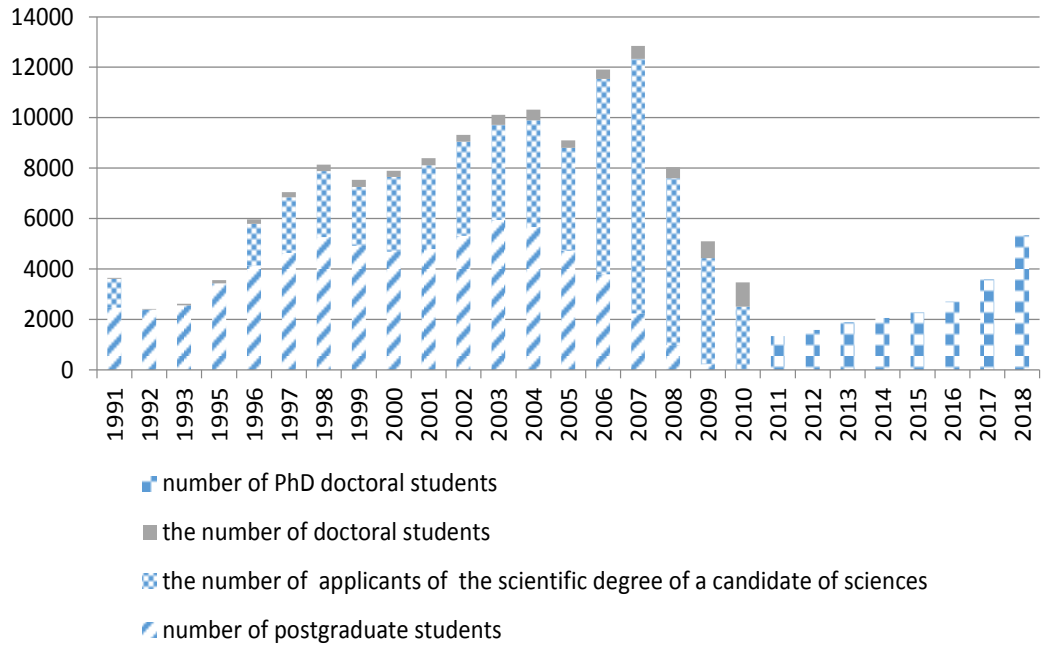

Figure 2 - **The number of scientific personnel training in the Republic of Kazakhstan, pers.**
Note - Compiled by the author on the basis of sources [2], [3].

As it can be seen from Figure 2, there is an increase in the number of postgraduate students in 1992-1998 and 2000-2003 periods and a gradual decrease in the subsequent period. Despite the difficult social and economic conditions in the country and in the field of education in particular, we can note the general trend of growth in the rates of postgraduate education up to including 2007 year. This year the maximum number of those who wish to get scientific degrees was recorded. The decrease in the rate of training of scientific personnel after 2007 on the dramatic changes' eve in the system of postgraduate education indicates a decline an interest in science caused by the young scientists' fears not to complete research work until the upcoming closure of councils for candidate and doctoral dissertations.

It is worth noting the increasing role of competition in the considered period. The number of leading scientific research in this form has steadily increased until 2007. Then, just like in the case of graduate students, the decline began. The maximum number of applicants fixed in 2007 - 10,106 people. The advantages of competing are obvious: the applicant, having attached himself for conducting research to the department of a higher educational institution or scientific research institute, conducts work under the supervision of a supervisor prepares for candidate exams independently; there are no strict deadlines for the preparation of the thesis, as in postgraduate course; the ability to conduct scientific activities without interrupting employment, which is important for non-resident and family. Currently, those who wish to engage in scientific activities lack these advantages accounted for more than 50% against the background of declining interest to postgraduate course before closing dissertation councils (see table 2).

Table 2

Dynamics of indicators of postgraduate students, applicants, doctoral students

Year	Number of postgraduate students, doctoral students, applicants	Postgraduate students		Applicants		Doctoral students (from 2005 to 2010 years including PhD doctoral students and doctors profile)	
		Number,pers.	Proportion, %	Number,pers.	Proportion, %	Number, pers.	Proportion, %
1991	3649	2469	67,7	1148	31,4	32	0,9
1996	5981	4143	69,3	1656	27,7	182	3,0
1997	7048	4642	65,9	2205	31,3	201	2,8
1998	8147	5272	64,7	2617	32,1	258	3,2
1999	7534	4919	65,3	2340	31,1	275	3,6
2000	7901	4691	59,4	2965	37,5	245	3,1
2001	8405	4792	57,0	3328	39,6	285	3,4
2002	9318	5321	57,1	3735	40,1	262	2,8
2003	10115	5943	58,8	3772	37,3	400	3,9
2004	10318	5665	54,9	4241	41,1	412	4,0
2005	9111	4718	51,8	4090	44,9	303	3,3
2006	11909	3792	31,8	7751	65,1	366	3,1
2007	12852	2241	17,4	10103	78,6	508	4,0
2008	8046	988	12,3	6619	82,3	439	5,4
2009	5101	228	4,5	4207	82,5	666	13
2010	3468	20	0,6	2488	71,7	960	27,7
2011	1337	-	-	-	-	1337	100
2012	1588	-	-	-	-	1588	100
2013	1892	-	-	-	-	1892	100
2014	2063	-	-	-	-	2063	100
2015	2288	-	-	-	-	2288	100
2016	2710	-	-	-	-	2710	100
2017	3603	-	-	-	-	3603	100
2018	5345	-	-	-	-	5345	100
Note - Compiled by the author based on the source [2]							

2007-2010 is a period of waiting for changes in the system of the scientific personnel training and, as a result, a fall in the number of potential candidates and doctors of sciences. Weak growth, but already received the status of a scientific degree of PhD doctors was noted after 2011. The training of doctoral students in 2011-2016 periods was carried out only at the expense of the state educational order and only from the 2016-2017 school year there was the recruitment allowed by the purchase of state educational services, i.e. on a paid basis. But the training pace remains low at the moment. The main reasons, in our opinion, are:

1) insufficient state educational order

2) high cost of doctoral studying in doctoral course

3) full-time education, due to which doctoral students completely or partially lose the opportunity to carry out full-fledged work and earn money

4) low scholarships for students due to the state educational order (about 82 thousand tenge).

Effective completion of postgraduate and doctoral studies is a defense of the dissertation

thesis. Figure 3 presents information about the dynamics of postgraduate and doctoral students with and without defense.

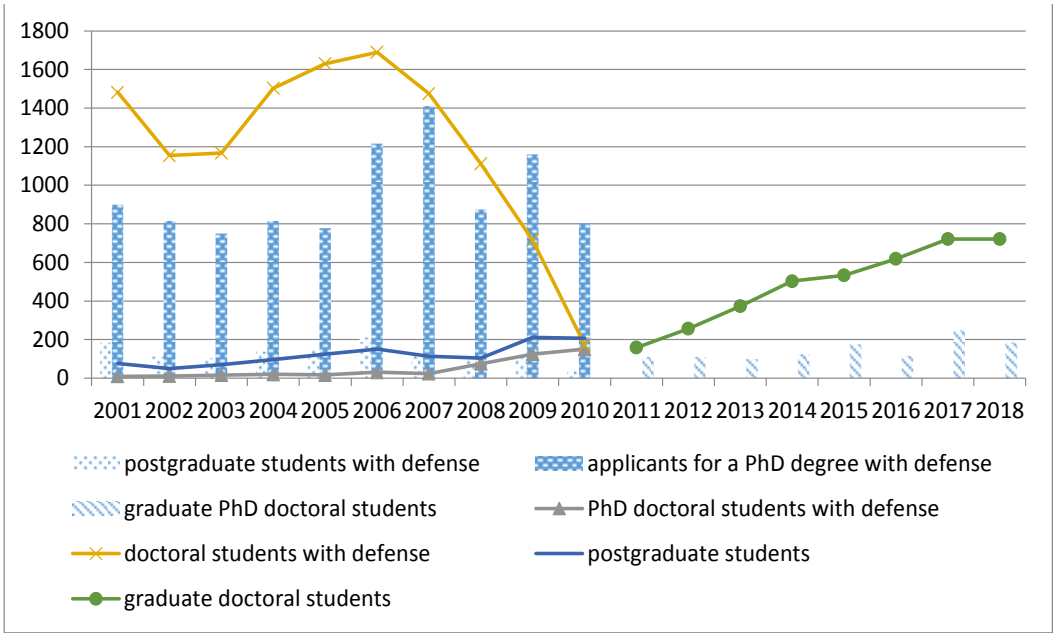

Figure 3 - **Effectiveness of postgraduate students, doctoral students and applicants, pers.**
Note - Compiled by the author based on the source [2]

There is a low proportion of postgraduate and doctoral students who defended their dissertations in the considered period - within 8-23% of the total output. In the quantitative form, the output effectiveness is presented in table 3.

Table 3

Data on the candidate and doctoral theses' defense in the Republic of Kazakhstan

Year	Defended candidate dissertations	Including		Postgraduate students	Proportion of the defended post graduate students	Defended doctoral dissertations	Graduate doctoral students	Proportion of the defended doctoral students
		By postgraduate students	By applicants					
2000	1050	191	859	1467	13,0	15	78	19,2
2001	1084	185	899	1482	12,5	10	76	13,2
2002	929	113	816	1154	9,8	11	50	22,0
2003	856	106	750	1167	9,1	16	70	22,9
2004	955	139	816	1503	9,3	20	97	20,6
2005	931	152	779	1630	9,3	17	124	13,7
2006	1428	212	1216	1689	12,6	31	150	20,7
2007	1533	122	1411	1475	8,3	24	114	21,1
2008	985	111	874	1111	10,0	78	104	75,0
2009	1270	110	1160	715	15,4	125	211	59,2
2010	840	36	804	171	21,1	150	207	72,5
2011	-	-	-	-	-	111	159	69,8
2012	-	-	-	-	-	110	257	42,8
2013	-	-	-	-	-	100	373	26,8
2014	-	-	-	-	-	125	503	24,9
2015	-	-	-	-	-	175	533	32,8
2016	-	-	-	-	-	117	619	18,9
2017	-	-	-	-	-	249	721	34,5
2018	-	-	-	-	-	185	721	25,7

Note - Compiled by the author based on the source [2]

It is fair to note the following: after 2012 the proportion of PhD doctoral students who defended their dissertations in Kazakhstan exceeds the proportion of the defended postgraduate and doctoral students in the Russian Federation (Figure 4). The highest percentage of doctors of sciences, more than 50%, in the Republic of Kazakhstan is observed in 2007-2011 years. There was an increase of proportion of dissertations defense on candidate of scientific degree recorded from 2007 till 2010 before termination of dissertation councils' activity.

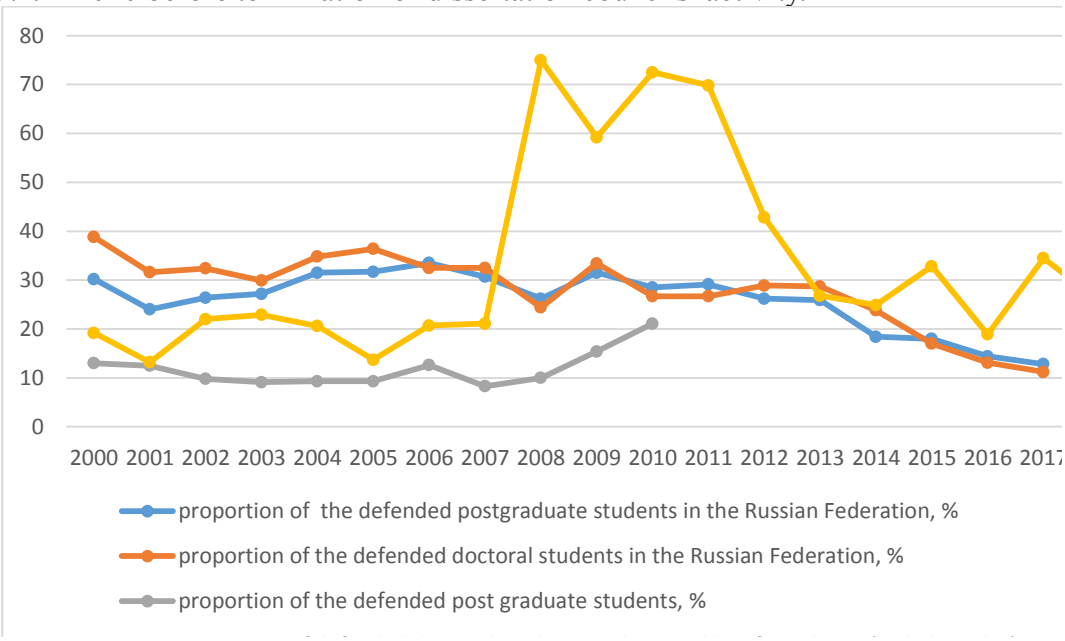

Figure 4. **The proportion of graduates of higher professional qualifications in the Republic of Kazakhstan and in the Russian Federation**

Note - Compiled by the author on the basis of sources [2,3].

Currently, the percentage of tertiary education in the Republic of Kazakhstan, despite significant fluctuations, exceeds the same Russian indicator: in the Russian Federation, there is a drop in the effectiveness of postgraduate training as a result of stricter requirements on the part of the Ministry of Science and Higher Education for the scientific personnel training.

In our opinion, there is a weak intercommunication of the dynamics of graduate students with the PhD number among the universities' academic teaching staff noted (Figure 5).

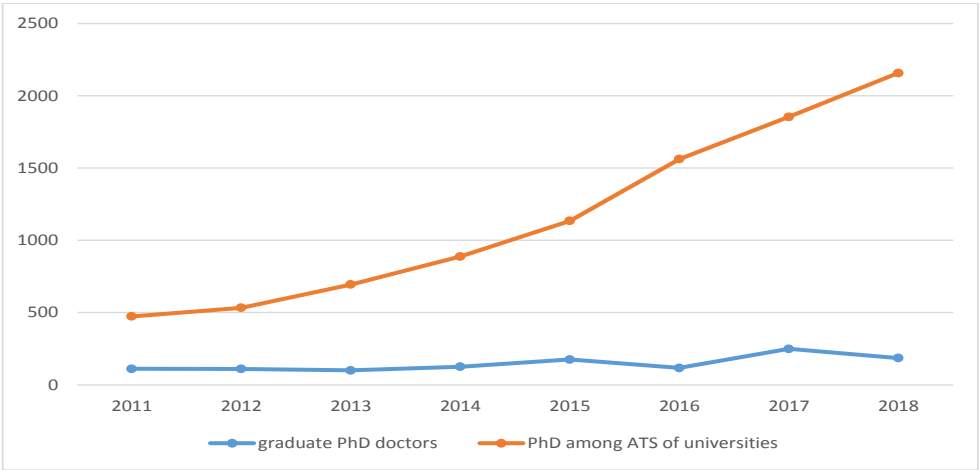

Figure 5. **The number of PhD doctors with defense and among the academic teaching staff**

Note - Compiled by the author based on the source [2].

In the field of higher education, the number of Doctors of Philosophy among the academic teaching staff is growing at a higher rate compared with the number of graduates from doctoral studies. The need for highly qualified teaching staff is met at the expense of teaching staff who have received the PhD degree abroad with subsequent diploma nostrification in Kazakhstan.

At the same time, in the considered period there is a decrease in the number and proportion of candidates of sciences noticeable. Thus, in the field of higher education, they are gradually replaced by PhDs (Table 4).

Table 4

The ATS number and proportion with scientific degrees in the universities of the Republic of Kazakhstan

Year	Number of ATS	Candidates of sciences		Doctors of sciences		PhD doctors	
		Number, pers.	Proportion, %	Number,pers.	Proportion, %	Number, pers.	Proportion, %
2000	29577	9474	32,03	1849	6,25	-	-
2001	34508	10769	31,21	2323	6,73	-	-
2002	37602	11609	30,87	2501	6,65	-	-
2003	40972	11604	28,32	2518	6,15	-	-
2004	42333	12350	29,17	2728	6,44	-	-
2005	43382	12773	29,44	2869	6,61	-	-
2006	42788	13073	30,55	2988	6,98	-	-
2007	41207	13107	31,81	3000	7,28	-	-
2008	37814	12851	33,98	2784	7,36	-	-
2009	39155	13200	33,71	2769	7,07	263	0,67
2010	39600	14178	35,8	3168	8,0	362	0,91
2011	40531	14722	36,32	3623	8,94	473	1,17
2012	41224	15161	36,78	3796	9,21	533	1,29
2013	41635	15908	38,21	4008	9,63	694	1,67
2014	40320	14949	37,08	3863	9,58	888	2,2
2015	38087	14340	37,65	3591	9,43	1134	2,98
2016	38241	14023	36,67	3499	9,15	1562	4,08
2017	38212	13276	34,74	3251	8,51	1854	4,85
2018	38275	12896	33,69	3197	8,35	2157	5,64

Note - Compiled by the author based on the source [2]

Since 2009 year the number of PhD doctors has increased in the academic teaching staff which was about 1.6 thousand people with a decrease in the number of candidates of sciences from 2014 to the same meaning. In the future, the proportion of candidates and doctors of sciences will tend to decrease. Already now there are no candidates and doctors of sciences younger than 40 years in the ATS (table 5). The holders of these scientific degrees older than 40 years make up 47% of ATS degrees and 23% of all ATS; 1.4 thousand candidates of sciences and 1.6 thousand doctors of sciences are in retirement age.

Table 5

Age profile and ATS proportion with scientific degrees in the universities of the Republic of Kazakhstan in 2018 year

Age groups	The ATS number with scientific degrees, pers.	Including				The ATS age groups' proportion with scientific degrees, %
		Candidates of sciences, pers.	Doctors of sciences, pers.	Doctors profile, pers.	PhD doctors	
Up to 30 years	421	192	15	-	214	2,28
30-39 years	3511	2073	201	8	1229	19,01
40 years and older (women 40-57 years old, men 40-62 years old)	9258	7149	1347	106	656	50,12
Retirement age (women over 58 and men over 63)	5282	3482	1634	108	58	28,59
Total	18472	12896	3197	222	2157	100
Note - Compiled by the author based on the source [2]						

Thus, for the subsequent replacement of the list of candidates and doctors of science, intensive training of PhD doctors is required, exactly: activation of defenses, increase in government order and improvement of social availability for doctoral students and PhD doctors. On the basis of the data obtained, it is possible to conclude that the proportion of doctors in the new formation will increase in the number of teaching staff; an increase in the number of educational grants including those targeted for universities will ensure a further increase in the number of PhD doctors.

Conclusion. Braking in the field of personnel training, in our opinion, is caused by the following main reasons:

1) insufficient number of grants allocated, although every year their number increases. Starting training on a commercial basis, in our opinion, will not change the situation due to the very high cost of doctoral studies. The amount of payment for the year in the country ranges from 1 - 2.6 million tenge. As a rule, in national universities and universities of large cities the cost is higher. Students on a paid basis do not get scholarships. The negative impact of this cause is exacerbated by the following;

2) full-time doctoral training. A doctoral candidate does not officially have the right to work during school hours including in government organizations. Even holders of places in the target doctoral studies, and these are mostly pedagogical staff of universities and employees of scientific organizations, can't continue working in the organizations that send them to full time, only part-time. In other words, the doctoral candidate is deprived of the opportunity to fully earn, interrupting his career. In our opinion, it would be appropriate to use the evening-time education, elements of institutes of competition and correspondence postgraduate studies that allow one to study on the job, which would help to prepare faculty from the regions;

3) low level of funding for undergraduate and doctoral students.

A partial solution of these problems would speed up the rate of training of scientific personnel in the country. The existing educational system of universities needs to be updated and rejuvenated by professional teaching staff with scientific degrees. Expanding the network of research institutions in the country also requires decisive steps in the training of scientific personnel with innovative thinking.

Список литературы

1 Послание Президента Республики Казахстан Н. Назарбаева народу Казахстана. 5 октября 2018 г «Рост благосостояния казахстанцев: повышение доходов и качества жизни» [Электронный ресурс]. – URL: http://www.akorda.kz/ru/addresses/addresses_of_president/poslanie-prezidenta-respubliki-kazahstan-nnazarbaeva-narodu-kazahstana-5-oktyabrya-2018-g2. (Дата обращения 04.12.2018 г.)

2 Официальный сайт Комитета по Статистике Министерства Национальной Экономики Республики Казахстан. Официальная статистическая информация (по отраслям). Образование. http://stat.gov.kz. Дата обращения 04.12.18.

3 Официальный сайт Федеральной службы государственной статистики Российской Федерации. http://www.gks.ru. Дата обращения 04.12.18.

4 Калдыбаева О., Ашимханова Д. Использование инноваций в образовательной среде в современном Казахстане. - Казахстан-Спектр, 2017 №3 (81) с.47-59.

5 Акульшина А.В., Завьялова Л.А. Интернационализация высшего образования: международные векторы стратегии развития университета. – Высшее образование в России, 2018 №8-9 с.117-125.

6 Ермакова Ж. А., Никулина Ю. Н. Экспорт образовательных услуг из приграничного региона // Экономика региона, 2019. Т. 15, вып. 1. с. 191-204

7 Национальный доклад о состоянии и развитии системы образования Республики Казахстан (по итогам 2017 года): Е. Нурланов, М. Амангазы, Г. Ногайбаева, А. Ахметжанова, Г. Карбаева, М. Даулиев, Е. Коротких, Д. Абдрашева, М. Шакенова, А. Дуйсенгали, Н. Касымбекова. - Астана: АО «ИАЦ», 2018. - 434 с.

8 Cervantes M. (2017) Higher Education Institutions in the Knowledge Triangle. Foresight and STI Governance, vol. 11, no 2, pp. 27–42.

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Қазақстан Республикасы ЖОО үшін кәсіби біліктілігі жоғары қызметкерлерді даярлау барысындағы инновациялар

Аңдатпа. Мақалада Қазақстан Республикасында 1991 жылдан басталған кәсіби біліктілігі жоғары мамандарды даярлау жайындағы мәліметтер талданып, жинақталған. Ресей мен Қазақстан жоғары оқу орындарын ғылыми дәрежесі бар оқытушылармен қамтамасыз ету өзгерістерінің қарқыны; докторанттар (сонымен қатар сала бойынша докторанттар мен Ph.D) және аспиранттар саны, оларды даярлап шығару сапасы көрсеткіштерінің динамикасы; ғылым кандидаты дәрежесін алуға ізденушілердің ғылыми қызметі нәтижелілігінің көрсеткіштері ерекше назарға алынады. Аталған көрсеткіштердің талдауы - 1991-2017ж.ж. аралығы бойынша жүргізілген. Ал, Ph.D докторантурасы бойынша көрсеткіштерді Қазақстан Республикасында қалыптасқаннан бастап қарастырылды. Талдау барысында қарастырылған көрсеткіштердің өзгеру үрдісінің ерекшелігін айқындайтын тұжырымдар жасалынған. Ғылыми мамандарды даярлау кезіндегі мәселелер анықталып, оларды шешу жолдары ұсынылған.

Түйін сөздер: ғылыми кадрлар, профессорлық-оқытушылар құрамының дәрежелілігі, аспиранттар, докторанттар, Ph.D, ғылым кандидаттары.

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Инновации в подготовке кадров высшей профессиональной квалификации для вузов Республики Казахстан

Аннотация. Содержание статьи составляют результаты анализа темпов подготовки научных кадров и обеспеченности ими профессорско-преподавательского состава вузов в Республике Казахстан с 1991 года. В частности, уделено внимание следующим параметрам: темпам изменения обеспеченности вузов преподавателями с учеными степенями в России и Казахстане; динамике численности докторантов (в том числе докторантов по профилю и PhD) и аспирантов, показателям качества их выпуска; показателям результативности научной деятельности соискателей ученой степени кандидата наук. Анализ перечисленных параметров произведен за период с 1991 по 2018 год. Показатели по докторантуре PhD рассмотрены с момента начала ее функционирования в Республике Казахстан. В ходе анализа сформулированы выводы, отражающие специфику тенденций изменения рассматриваемых показателей. Выявлены проблемы в темпах подготовки научных кадров и предложены меры по их решению.

Ключевые слова: научные кадры, остепененность профессорско-преподавательского состава, аспиранты, докторанты, PhD, кандидаты наук.

References

1 Poslanie Prezidenta Respubliki Kazahstan N. Nazarbaeva narodu Kazahstana. 5 oktjabrja 2018 g «Rost blagosostojanija kazahstancev: povyshenie dohodov i kachestva zhizni» [Address of the President of the Republic of Kazakhstan N. Nazarbayev to the people of Kazakhstan. October 5, 2018 “The growth of the welfare of Kazakhstan: an increase in income and quality of life”] [Electronic resource]. –URL: http://www.akorda.kz/ru/addresses/addresses_of_president/poslanie-prezidenta-respubliki-kazahstan-nnazarbaeva-narodu-kazahstana-5-oktyabrya-2018-g2. The appeal date is 04.12.18.

2 Oficial’nyj sajt Komiteta po Statistike Ministerstva Nacional’noj Jekonomiki Respubliki Kazahstan. Oficial’naja statisticheskaja informacija (po otrasljam) [Official site of the Committee on Statistics of the Ministry of National Economy of the Republic of Kazakhstan. Official statistical information (branch-wise)]. Education. http://stat.gov.kz. The appeal date is 04.12.18.

3 Oficial’nyj sajt Federal’noj sluzhby gosudarstvennoj statistiki Rossijskoj Federacii. [Official site of the Federal State Statistics Service of the Russian Federation]. http://www.gks.ru. The appeal date is 04.12.18.

4 Kaldybaeva O., Ashimkhanova D. Ispol’zovanie innovacij v obrazovatel’noj srede v sovremennom Kazahstane [Use of innovations in the educational environment in modern Kazakhstan], Kazakhstan-Spectrum, 81(3), 47-59(2017).

5 Akulshina A.V., Zavyalova L.A. Internacionalizacija vysshego obrazovanija: mezhdunarodnye vektory strategii razvitija universiteta [Internationalization of higher education: international vectors of university development strategy], Higher education in Russia, 8-9, 117-125(2018)

6 Ermakova Zh.A., Nikulina Yu.N. Jeksport obrazovatel’nyh uslug iz prigranichnogo regiona [Export of educational services from the border region], Economy of the region, Vol. 15, issue 1, 191-204(2019).

7 Nacional’nyj doklad o sostojanii i razvitii sistemy obrazovanija Respubliki Kazahstan (po

itogam 2017 goda): E. Nurlanov, M. Amangazy, G. Nogajbaeva, A. Ahmetzhanova, G. Karbaeva, M. Dauliev, E. Korotkih, D. Abdrasheva, M. Shakenova, A. Dujsengali, N. Kasymbekova [National report on the state and development of the education system of the Republic of Kazakhstan (following the results of 2017] - Astana: "IAC" JSC, 2018. – p. 434

8 Cervantes M. (2017) Higher Education Institutions in the Knowledge Triangle. Foresightand STI Governance, vol. 11, no 2, pp. 27–42.

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