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Problems and state of qualification testing of teachers of the Republic of Kazakhstan (in natural science subjects)

Abstract. *Nowadays the comparison of foreign and domestic experience of certification of teaching staff and certification of graduates of pedagogical specialties shows that it is necessary to improve the content and conditions of certification of teachers. Certification of teaching staff today is one of the important, effective ways to improve the professional skills of teachers. Certification of graduates creates conditions for access to assessment and recognition of qualifications not only by the academic environment but also by the employer. This article discusses the problems and the state of the national qualification testing of teachers in the Republic of Kazakhstan. All teachers are certified every five years, which determines whether they meet the qualification requirements. Ensure that the certification procedure complies with the latest systems for assessing the quality of education; national qualification testing of teachers has been introduced as one of the certification stages, which allows monitoring of scientific research not only in the context of a specific region but also at the national level.*

The data of observations is given, and a deep analysis of the problems of teachers of subjects of the natural cycle du.ring the certification is made. A project has been developed, and the expected results for obtaining a teacher category and improving the State of qualification tests are given in this research.

Keywords: *teacher, certification, national qualification testing, computer, and web testing.*

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Introduction

One of the important problems existing today in the education system of Kazakhstan is its modernization. However, the need for modernization and the forms that this process takes currently contain contradictions. On the one hand, of course, it is necessary to consider world achievements in the field of education, new learning technologies, and the stimulation of the educational process. On the other hand, the transition to foreign samples cannot be accompanied by a reference copy without considering the conditions that have developed in Kazakhstan.

The State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020-2025" provides a high status of the teacher's profession and modernization of pedagogical education. According to this document, since 2018, republican teachers have switched to a new certification system. Certification is carried out in order to determine the compliance of the professional level of a teacher with the requirements of the qualification category. The procedure of National qualification testing is carried out in order to determine the level of subject knowledge and professional competence of a teacher according to tests developed by the authorized body in the field of education.

Special attention is given to introducing the status of the teacher in Kazakhstan. The state provides teachers with social guarantees, takes measures to monitor and improve the quality of their services, and also motivates them to self-education. Teachers are certified once every five years, which determines whether they meet the qualification requirements established by the Ministry of Education and Science of the Republic of Kazakhstan. In the course of their work, the certification commissions observe the principles of transparency and collegiality, which ensures an objective attitude to the certified, systematic and conscientious both internal and external assessments. To ensure the

certification procedure using the latest educational quality assessment systems, the National Testing Center (NCT) has developed and implemented the national qualification testing of teaching staff (NCT), which allows monitoring research not only in the context of a particular region, but also at the national level. NCT is a procedure aimed at determining the level of professional competence of teachers and school principals. Certification is carried out in two stages: the first stage is qualification testing, the second is a comprehensive analytical synthesis of the activity results. [1].

NCT already has excellent experience in creating databases of test tasks and conducting tests. Testing processes were introduced in Kazakhstan in 1993. Currently, external control through testing has covered all levels of education, and testing is used in various forms of verification: state certification of educational organizations, final certification of graduates, entrance exams to universities (UNT), and external assessments of educational achievements.

For the first time, the question of whether to introduce a testing procedure for the certification of teachers and teaching staff arised in 2007. In order to determine the technology of organizing and cond.ucting software testing, in 2007, in an experimental mode, testing was carried out in the form of blanche testing in the following 2008 - in the form of computer testing. Since it was recognized that teachers and teaching staff were not ready for this kind of verification, it was decided to fully implement testing in the form of test tubes for teachers from 2010. Tubing was introduced as one of the certification stages, which is carried out to determine the level of professional competence when upgrading and confirming the qualification category.

Research methods

The selection of teachers is carried out in the form of computer testing. According to the testing format, knowledge is tested in the following areas of knowledge (blocks): "Knowledge of the legislation of the Republic of Kazakhstan", "Fundamentals of pedagogy and psychology", and "Fundamentals of subject knowledge". The total tes.ting time is 2 hours; for teachers taking tests in mathematics, physics, and chemistry, the total testing time is 135 minutes. Thus, on average, one task takes 2 minutes, and in the subjects "Mathematics", "Physics", and "Chemistry" - 2 minutes 45 seconds. Testing is considered successful if at least 50% of correct answers are selected in general sections ("Knowledge of the legislation of the Republic of Kazakhstan", "Fundamentals of pedagogy and psychology") and at least 70% - in subject areas. The block "Knowledge of the legislation of the Republic of Kazakhstan" checks teachers and teaching staff for knowledge of the Constitution of the Republic of Kazakhstan, the laws of the Republic of Kazakhstan "On Edu.cation", "On the rights of the child", the Labor Code of the Republic of Kaza.khstan. The section "Fundamentals of Pedagogy and Psychology" includes tasks on the theory and methodology of education, didactics, management, and organization of educational processes, and general and pedagogical psychology. The section "Fundamentals of subject knowledge" covers the entire curriculum on the subject; however, the tasks in the sections are designed for a specialist and exceed the usual test tasks for applicants in terms of complexity.

The implementation of tubing is carried out in stages. Currently, the network has created a database of test tasks for preschool education and upbringing teachers, primary, essential, and general secondary education; a total of 37 disciplines in Kazakh and Russian. The analysis of the project results for 2019 is given [2, 3].

Table 1

Generation of QTPW (Qualification Testing of Pedagogical Workers) test job base

Year of holding	Coverage of teachers	Number of disciplines	Average time to complete 1 job	Scored above threshold score	Failed	Appeal
2019	- preschool education and education - primary education - basic secondary education - general secondary education - psychologists of schools and colleges - librarians of educational organizations 70 thousand teachers	30 - pedagogy, 70 - on profile item	2 minutes, 2 minutes in mathematics, physics, chemistry	44%	56%	28,000 applications

Statistical analysis by Kazakhstani areas was carried out, test results are presented in percentage form.

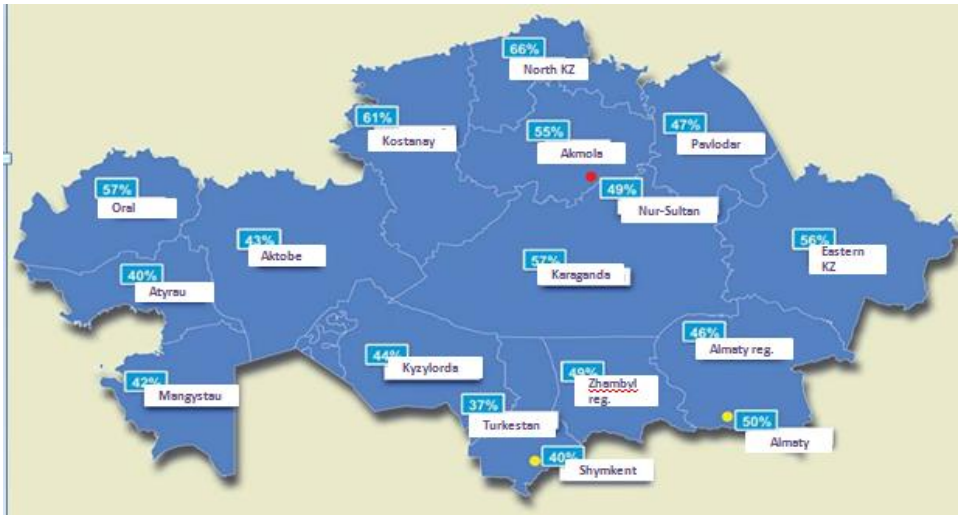


Figure 1.

Table 2

Total 74,837 applications received for National Qualification Testing in the Republic of Kazakhstan

Subject teachers	Quantity	Percentage
Mathematics	4078	61%
Computer Science	2457	3%
Biology	1878	2.5%
Physics	1555	2%
Chemistry	939	1.2%

The test specifi.cations and assignments are formulated in accordance with the state mandatory education standards and standard curricula. The database of reservoirs is formed in accordance with the scheme shown in Fig.2.

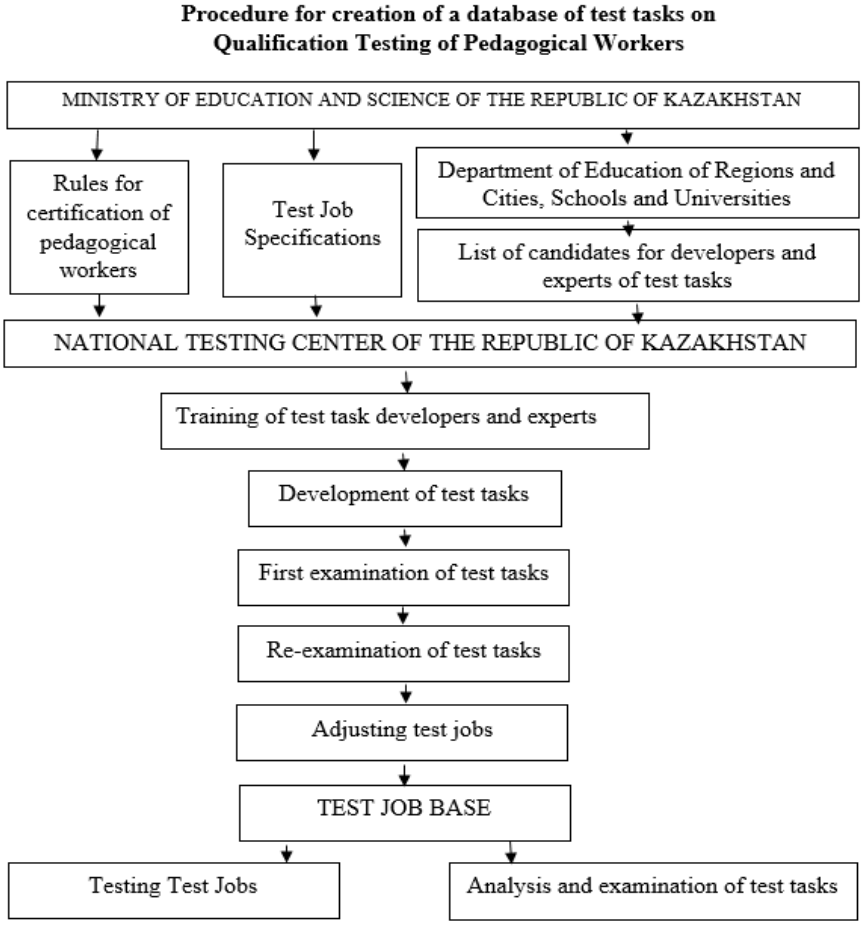


Figure 2.

Discussion

According to the scheme, about 30% of the database is updated annually. The developers and experts of NCT test tasks are teachers of the highest category who have at least 15 years of teaching experience, have achievements in their field of knowledge, and whose students have won various educational and scientific competitions. Their records are kept by education departments that offer their NCT for work. Methodological research of teachers reflects the active implementation of test technologies in the assessment of students' knowledge, which at the same time provides NCT with competent developers and experts in the field of technology. NCT itself has a considerable share in this since it annually organizes training seminars for experts in test tasks of various testing procedures on the basics of the theory and methodology of pedagogical measurements, and assessment of the quality of measuring materials with the invitation of leading specialists from different countries [4].

Table 3

Comparison of test results with 2018 (conducted in paper version)

Regions	Paper version National Centre	Computer version "U-Study"
Turkestan	52,7	33
Kostanay	71,2	61
Astana	73,8	47
Atyrau	76,7	40

Due to the requirement to ensure the confidentiality and safety of test materials, all the main stages of the formation of the database of test tasks are the improvement and examination of test tasks. They are conducted on the basis of NCT in specialized classrooms equipped with computers. For the effective work of developers and experts in test tasks, the NCT is provided with educational and methodological literature. During the exam, a comprehensive assessment of the quality of test tasks is carried out in the following forms: the significance of the content of tasks for achieving control goals, the adequacy of the requirements for the level of knowledge of the material, the correctness of the formulations of tasks and distractions. If necessary, experts partially or completely edit test tasks, presenting their revisions. Testing is organized to establish, analyze, and classify the measurement capabilities of test tasks and the test as a whole; therefore, as a rule, test tasks developed in the current year are tested. Testing is organized and measured by NCT together with local departments of education and institutes of advanced training. Testing is carried out almost in full accordance with basic testing, thus teachers get used to the computer interface, check their knowledge of each section of the test, and also determine the procedure for submitting documents and conducting testing. The qualification testing of teachers, which was updated this year, remains the focus of attention of the entire pedagogical seminar in Kazakhstan. According to the new certification system, each category of teachers - moderator, expert, researcher, and master - has a certain amount of additional salary, as well as corresponding requirements, as well as to the qualification levels of teachers. In order to receive an additional salary of 30%, teachers must receive more than 50% of each component. To receive a 35% bonus and the "teacher-expert" level, teachers must correctly answer 60% of the questions. Headteachers

must answer more than 80% correctly. Teachers of pre-retirement age will be exempt from certification five years before retirement, and the category they have will remain the same. The test certificate will be valid for one year after the testing procedure. If the teacher has successfully passed the test but has not passed the second stage, then he can take it next time during the year. At the end of the test, the answers will be scanned and processed, followed by a report on the results. Until 13.00 the next day, it will be possible to file an appeal [5-7].

In 2019, more than 70 thousand teachers passed the National Qualification Testing. Analysis of the results showed that 56% of teachers did not score a threshold score. The results of the testing are given in the following table 4:

Table 4

Category	Percentage of applicants (number of people)	Percentage of tested applicants (number of people)	Average score	Max. score
Teacher-moderator	28% (19,600)	12% (2,352)	49	105
Teacher-researcher	33% (23,100)	13% (3,003)	60	108
Teacher-expert	37,5% (26,250)	14% (3,675)	53	109
Teacher-master	2% (1,400)	26% (364)	61	106

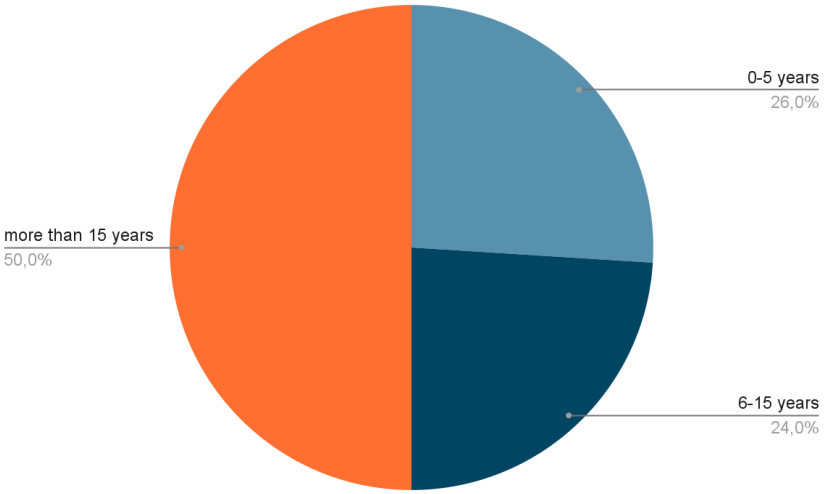
According to the data obtained, the knowledge of teachers of the highest category is lower than that of teachers of the lowest category. This paradoxical situation was provided by the complex.ity of test tasks. Tes.ting of test tasks for each category was carried out regardless of the reason for the appearance of search results. To this end, a questionnaire was conducted to identify low indicators for the taught subject of the natural direction, in which 783 teachers took part.

Table 5

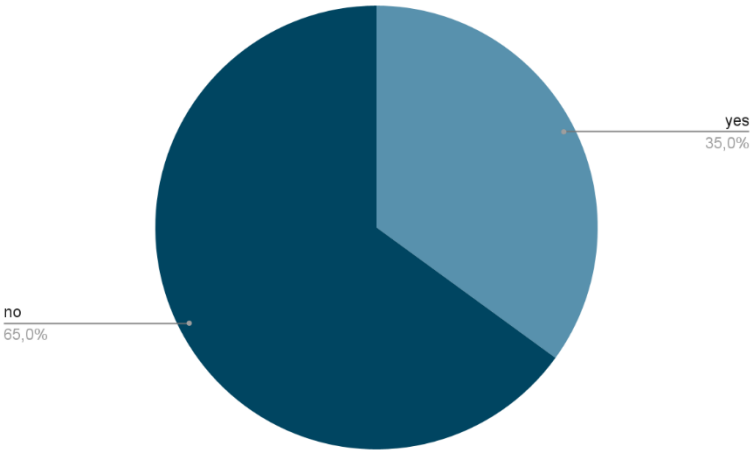
Subject teachers	Quantity
Mathematics	129
Computer Science	166
Biology	285
Physics	124
Chemistry	79

Results of the survey questionnaire on the subject "Biology":

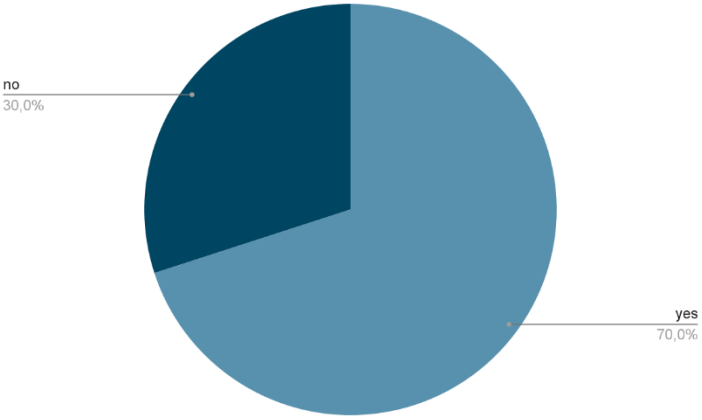
Q1: Your work experience?



Q2: Have you ever passed a qualification test?



Q3: Have you taken advanced training in your subject in the last 5 years?



Q4: Select the areas in which you would like to improve your knowledge

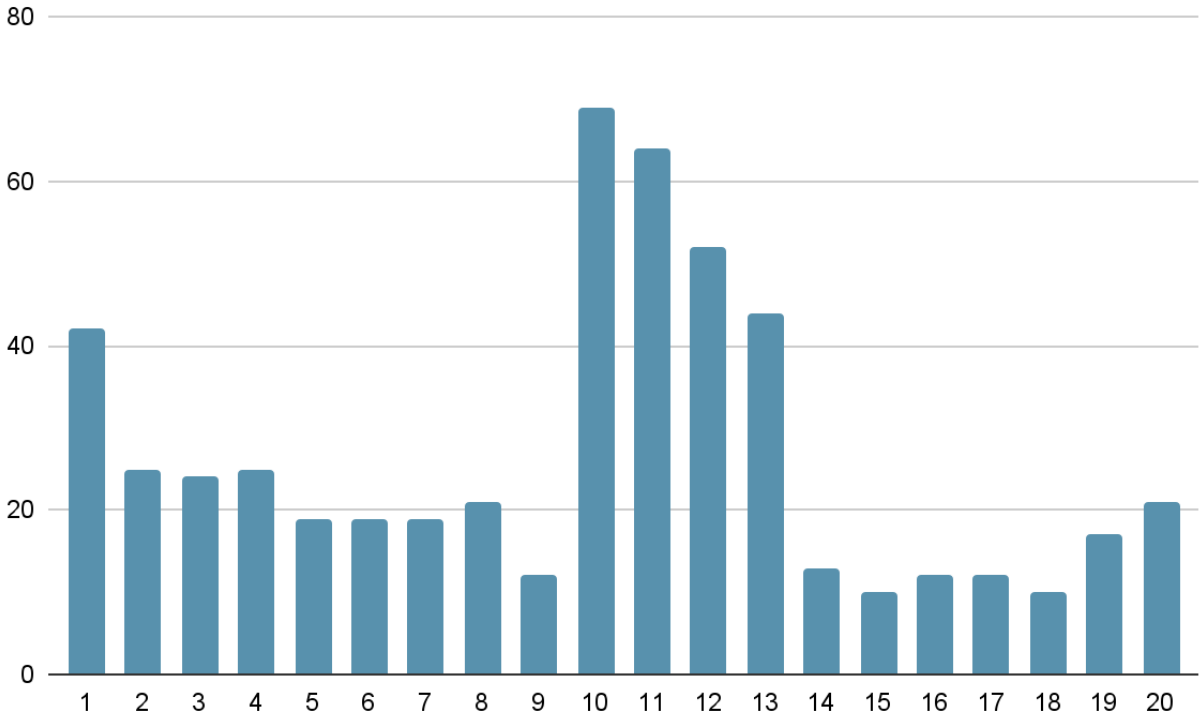


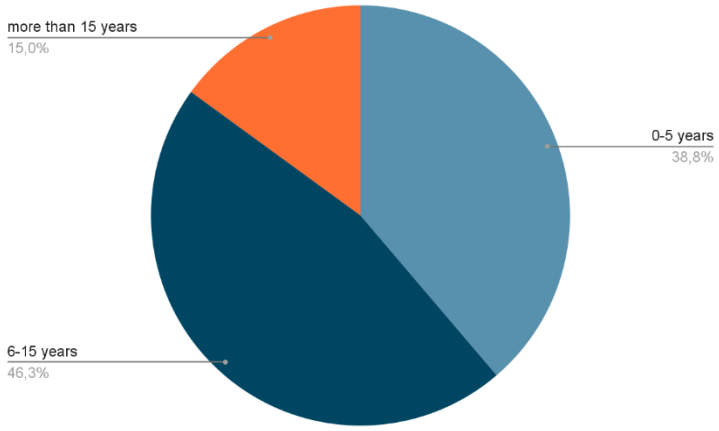
Figure 4.

Qualification testing sections:

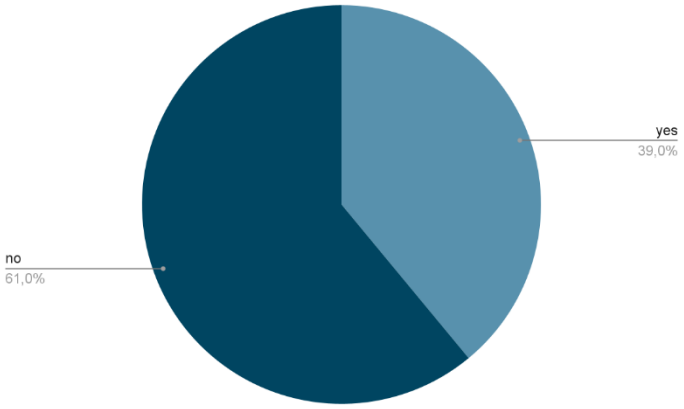
1. Anatomy and physiology of the nervous system
2. CNS functions
3. Anatomical structure and physiology of the musculoskeletal system
4. Blood and the anatomical structure of the circulatory system. A heart. Structure and physiology
5. Anatomical structure and physiology of the respiratory system
6. Anatomical structure and physiology of the digestive system
7. Anatomical structure and physiology of the excretory system
8. Reproduction. Sex organs. Sex education
9. The structure of the skin
10. Sex genetics, sex-linked inheritance
11. Linked inheritance and crossing over
12. Gene Interaction
13. Population genetics
14. Plant propagation
15. Classification and characteristics of mosses
16. Classification and characteristics of planoids
17. Classification and characteristics of horsetails
18. Classification and characteristics of ferns
19. Classification and characteristics of gymnosperms
20. Classification and characteristics of angiosperms

Results of the survey-questi.onnaire on the subject "Com.puter Science":

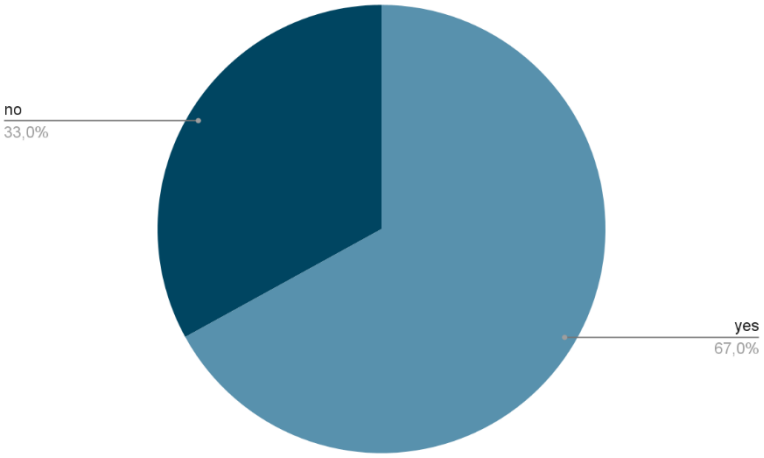
Q1: Your work experience?



Q2: Have you ever passed a qualification test?



Q3: Have you taken advanced training in your subject in the last 5 years?



Q4: Select the areas in which you would like to improve your knowledge

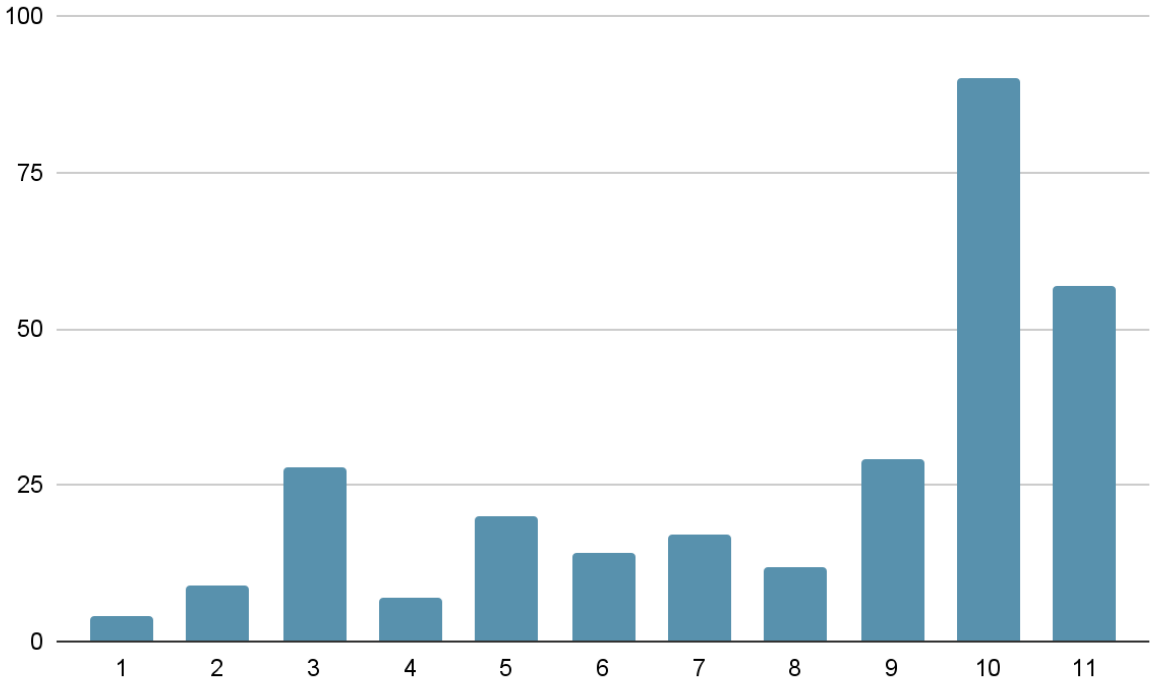


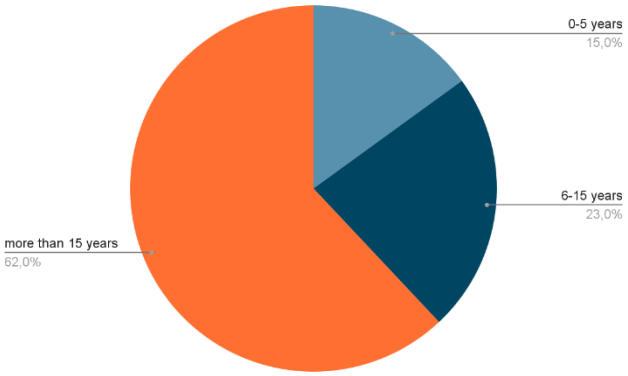
Figure 5.

Qualification testing sections:

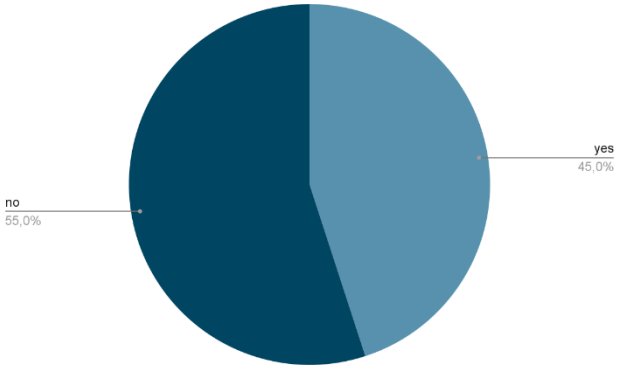
1. Introduction
2. Computer as a means of information processing
3. Classification and general characteristics of the software
4. Microsoft word processor
5. Basics of Computer Graphics
6. Microsoft Excel Spreadsheet
7. Data entry technology in MS Excel
8. MS PowerPoint. Presentation Creation
9. Computer telecommunications
10. Algorithmization and programming
11. Information modeling

Results of the survey-questionnaire on the subject "Mathematics":

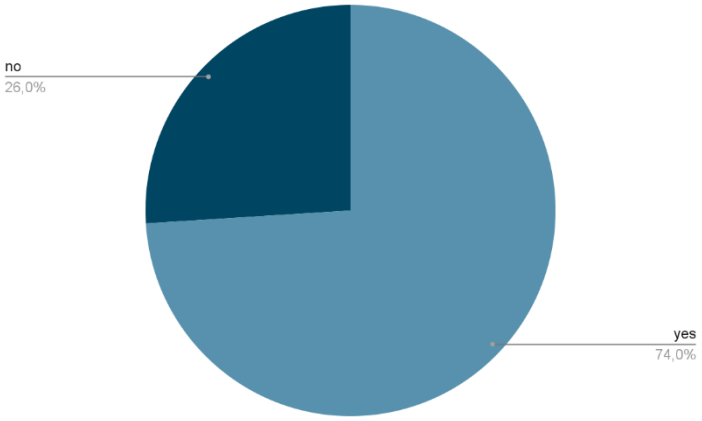
Q1: Your work experience?



Q2: Have you ever passed a qualification test?



Q3: Have you taken advanced training in your subject in the last 5 years?



Q4: Select the areas in which you would like to improve your knowledge

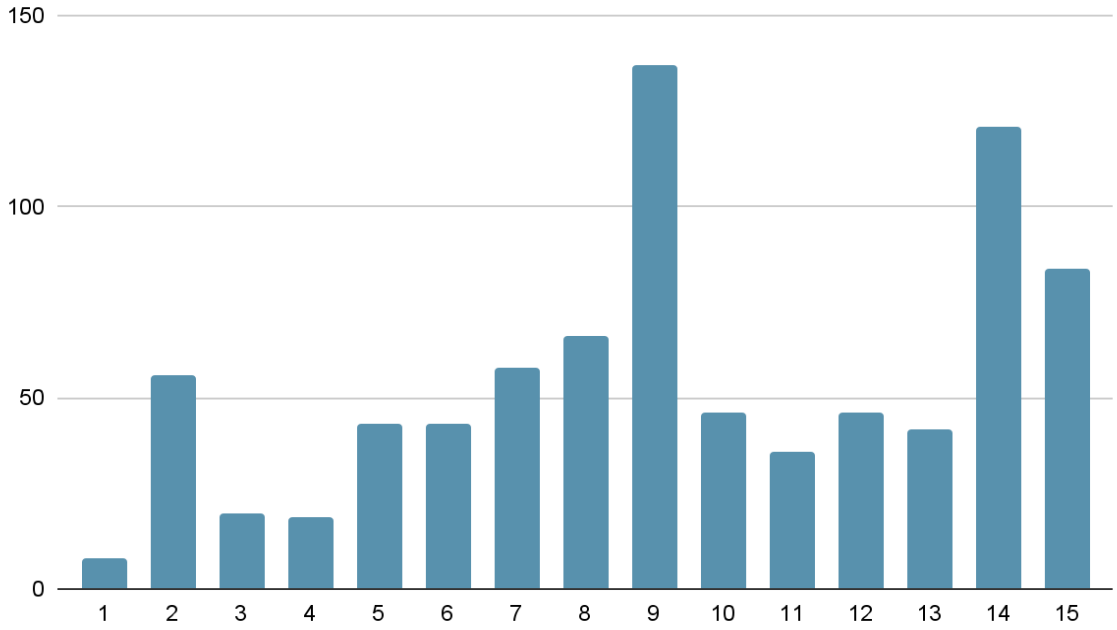


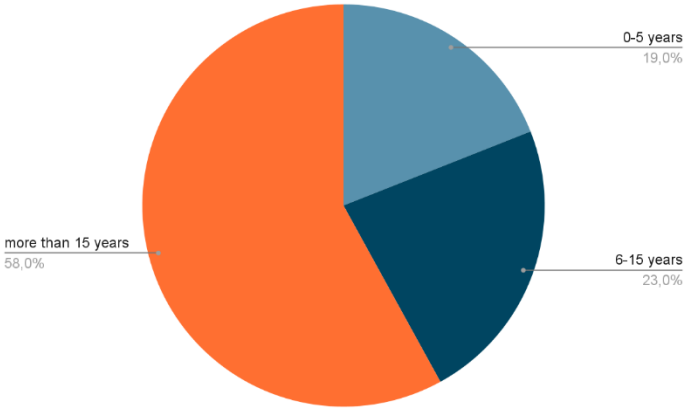
Figure 6.

Qualification testing sections:

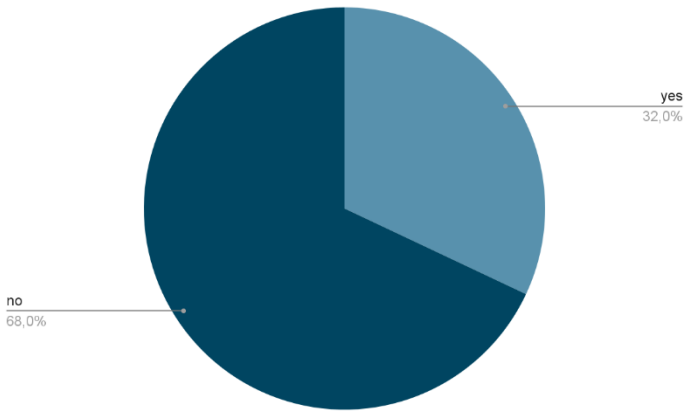
1. Calculations. Transformations of rational expressions. Percentage. Proportion
2. Problems with the generation of equations
3. Sequences. Arithmetic progression. Geometric progression.
4. Rational equations. Rational inequalities and their systems.
5. Exponential, logarithmic and irrational expressions.
6. Trigonometric Expressions.
7. Exponential, logarithmic and irrational equations and their systems.
8. Exponential, logarithmic and irrational inequalities and their systems
9. Trigonometric equations and inequalities and their systems.
10. Functions, their properties and graphs.
11. Derivative and its application.
12. Antiderivative and integral.
13. Plane geometry. Triangle and its area. Quadrangles and their areas. Circumference and Circle. Regular polygons.
14. Stereometry. The mutual arrangement of straight lines and planes in space. Polyhedra. Their areas and volumes. Bodies of rotation. Their areas and volumes
15. Coordinate method. Vectors on the plane and in space.

Results of the su.rvey-questionnaire on the subject "Ph.ysics":

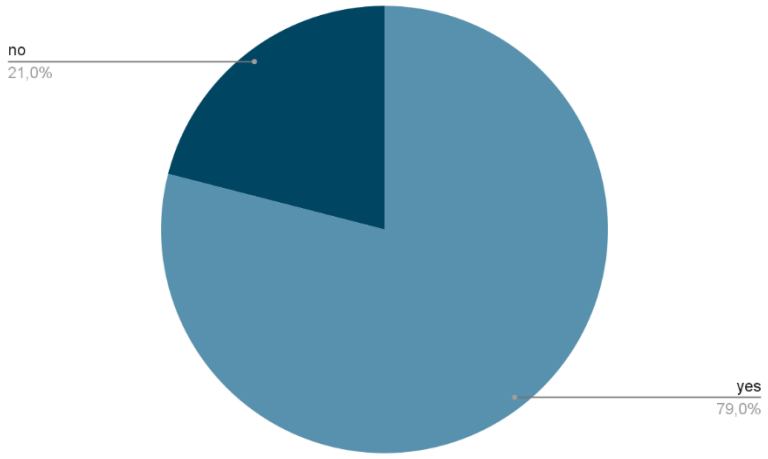
Q1: Your work experience?



Q2: Have you ever passed a qualification test?



Q3: Have you taken advanced training in your subject in the last 5 years?



Q4: Select the areas in which you would like to improve your knowledge

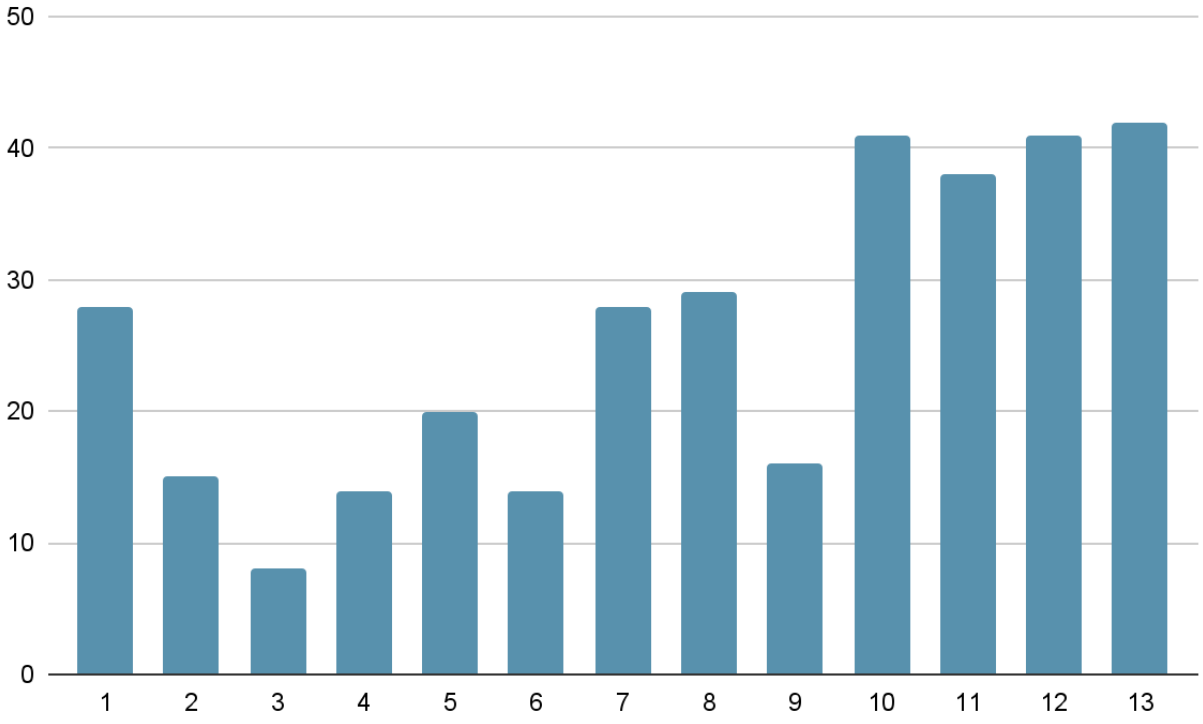


Figure 7.

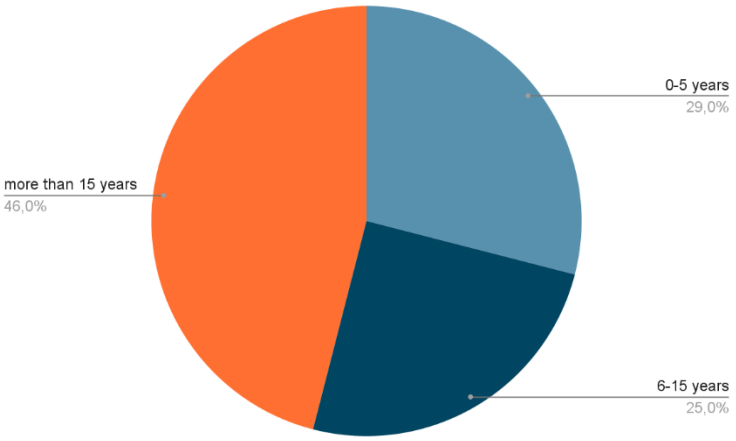
Qualification testing sections:

1. Kinematics.
2. Dynamics.
3. Work. Power. Energy.
4. Conservation laws.
5. Molecular physics. Thermal phenomena.
6. Thermodynamics.
7. Electrodynamics. Electrostatics.

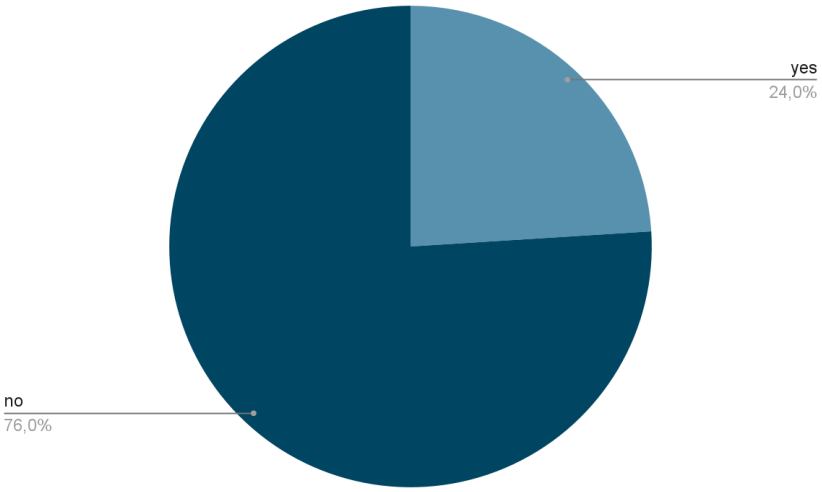
8. Electrodynamics. Electromagnetic phenomena.
9. Mechanical vibrations and waves.
10. Optics.
11. Quantum physics.
12. Atomic physics. Physics of the atomic nucleus and elementary particles.
13. Fundamentals of astronomy.

Results of the survey-questionnaire on the subject "Che.mistry":

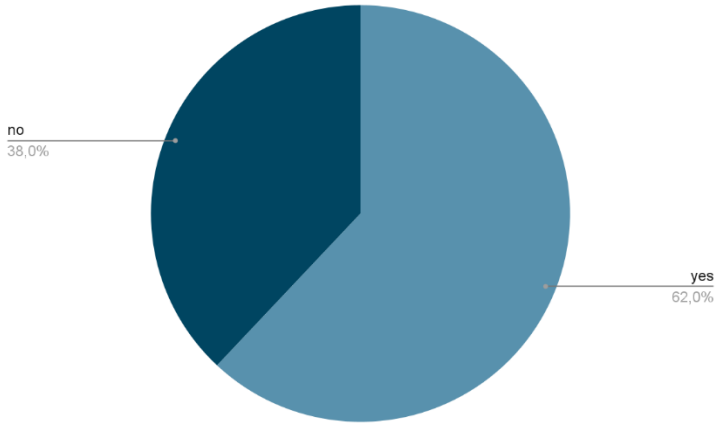
Q1: Your work experience?



Q2: Have you ever passed a qualification test?



Q3: Have you taken advanced training in your subject in the last 5 years?



Q4: Select the areas in which you would like to improve your knowledge

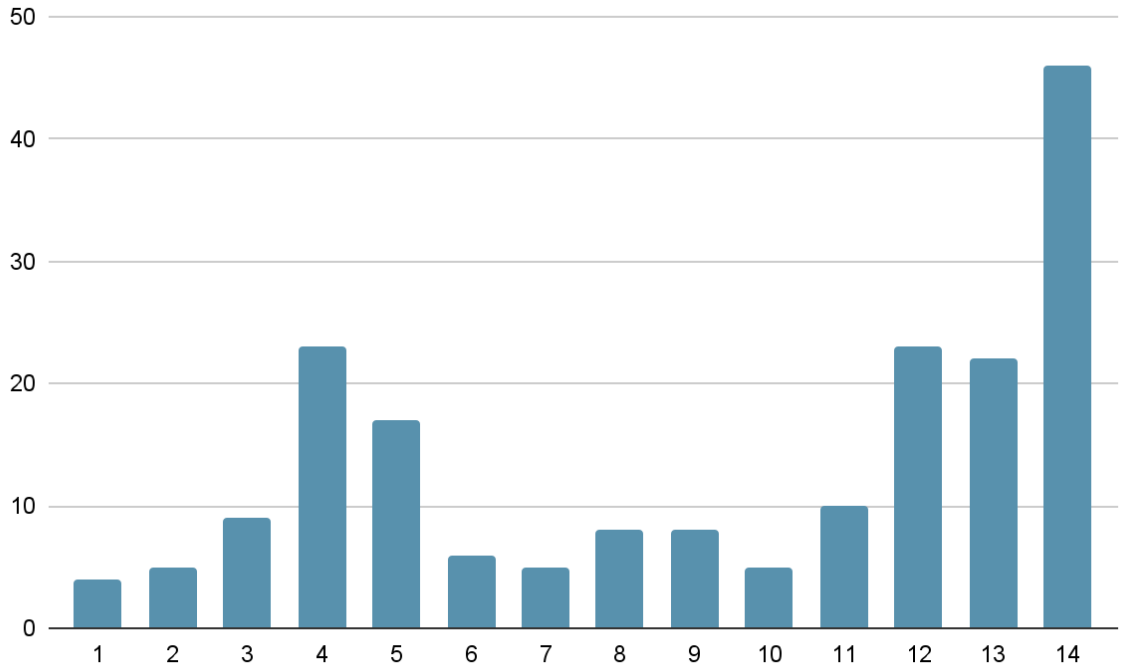


Figure 8.

Qualification testing sections:

1. Basic chemical concepts
2. The periodic system of chemical elements. Periodic law of D.I.Mendeleev. The structure of the atom
3. Chemical bond and structure of the substance
4. Patterns of chemical reactions
5. Water. Solutions. Theory of electrolytic dissociation
6. Oxides. Acids. Grounds. Salt. Genetic relationship of inorganic substances
7. Oxygen. Hydrogen. Halogens
8. Nonmetals of group IV A and their compounds.
9. Nonmetals of the V A group and their compounds.
10. Nonmetals of the VI A group and their compounds

11. Metals of the main and secondary subgroups and their compounds.
12. Basic concepts of organic chemistry. Marginal hydrocarbons. Natural sources of hydrocarbons. Genetic relationship of organic substances
13. Oxygen-containing and nitrogen-containing organic compounds
14. Synthetic high-molecular compounds

Expected results:

1. According to this project, the division into such tables can be an indicator of the teacher's knowledge level at different levels.
2. If the teacher cannot answer, it is determined from which chapter on which topic there are gaps in knowledge.
3. This can be an incentive for young and inexperienced professionals.
4. There is good st.atistical data on the improvement of teachers' subject knowledge and on the training of higher education specialists.
5. This project is suitable for all teaching professions and analysis of work performed after testing.
6. The main expected social effect of the introduction of this concept of teacher certification is the achievement of the quality of professional activity of teachers that meets the expectations of students, parents, and the local community; the emergence of new "growth points" of the regional education system; the expansion of the participation of the pedagogical community in the public administration of education.

Possible risks are associated with the lack of motivational readiness of teachers for an external assessment of the quality of activities in terms of understanding the task of the essence of professional training; inability to develop mechanisms for introducing into mass practice the standard of professional activity of teachers and an effective contract; as well as ways to support and support the training of teachers after certification.

Table 6

Category?	Passing criterion
Moderator teacher: A	90%
Research teacher: A	80%
Expert teacher: A	70%
Master Teacher: B	60%

Table 7

Moderator Teacher

Module 1	Module 2	Module 3	Module 4	Module 5
15 point	15 point	15 point	15 point	10 point
Level A Jobs				
1-2-3 chapters	4-5 chapters	6-7-8 chapters	9-10-11 chapters	12 chapters

Conclusion

New challenges require new approaches not only in teaching and vocational training but also in the development of tools for measuring and evaluating the professional development of teachers who implement these new approaches. To study this, we need to answer the following questions: What do we measure and evaluate? How do we implement this? What do we spend it on? The definition of goals and objectives can make it possible to develop rules that motivate teachers to self-improvement and self-realization.

There were measured and evaluated professional competence and the professional and creative growth of the teacher during the study. It was implemented by training teaching staff: from an applicant to a professional specialist, as well as pedagogical and methodological support throughout the activity. We are ensuring the teacher's professional development and measuring the activities' results to identify strengths and weaknesses and create conditions for further improvement. The results of this study will be used in order to determine the quality of the content of education and its effectiveness, to encourage and motivate teachers to improve their activities, identify gaps and develop effective learning technologies. During the in-depth analysis, a project was created: a test specification for determining teachers' qualification levels following the qualification requirements.

References

1. Закон Республики Казахстан "Об образовании" от 27 июля 2007 года № 319-III. [Electronic resource] – URL: https://adilet.zan.kz/rus/docs/Z070000319 (Accessed: 22.11.2022).

2. Правила аттестации педагогических работников, приказ Министерства образования и науки Республики Казахстан от 22.01.2010 № 16, с изменениями и дополнениями приказом Министерства образования и науки Республики Казахстан от 31.03.2011 № 119. [Electronic resource] – URL: https://www.ektu.kz/MONRK/16.pdf (Accessed: 22.11.2022).

3. Правила аттестации педагогических работников, приказ Министерства образования и науки Республики Казахстан от 9.04.2008 № 181. [Electronic resource] – URL: https://adilet.zan.kz/rus/docs/V040003401 (Accessed: 22.11.2022).

4. Нормативные и методические материалы KTPR, утвержденные Министерством образования и науки Казахстана, NCT. [Electronic resource] – URL: http://testcenter.kz/ru/pedagogam/nkt/o-nkt/ (Accessed: 22.11.2022).

5. Zhumykbayeva A., Bibekov K., Ilyassova M., Igilmanov M., Togys Zh., Kassenova M. Attitudes of course participants towards evaluation at the training courses of pedagogical staff // Cypriot Journal of Educational Science. – 2021. – Vol. 16. – No. 4. – P. 1750-1764.

6. Жолымбаев О.М., Онтагарова Д.Р., Сапакова А.К. «Проблемы разработки образовательных программ в соответствии с профессиональным стандартом «Учитель» и оценка результатов подготовки выпускников на основе квалификационного теста» // Международный научный журнал «Наука и жизнь Казахстана». – 2019. – № 9(1). – Б. 124-128.

7. Вопросы сертификации учителей и национального квалификационного тестирования. [Electronic resource] – URL: https://www.internauka.org/conf/spain/24#articles (Accessed: 22.11.2022).

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ҚР мұғалімдерінің біліктілік тестілеуінің мәселелері мен қалпы (жаратылыстану пәндері бойынша)

Аңдатпа. Мақалада ҚР бойынша мұғалімдердің ұлттық біліктілік тестілеуінің мәселелері мен жағдайы қарастырылған. Барлық педагог қызметкерлер әрбір бес жыл сайын аттестаттау рәсімінен өтеді, онда олардың деңгейінің біліктілік талаптарына сәйкестігі айқындалады. Аттестаттау рәсімін білім беру сапасын бағалаудың жаңа жүйелерімен қамтамасыз ету үшін аттестаттау кезеңдерінің бірі ретінде педагог қызметкерлердің ұлттық біліктілік тестілеуі (НКТ) енгізілді, ол жекелеген өңірдің контексінде ғана емес, бүкіл республика бойынша мәліметтерді қамтитын мониторингтік зерттеулер жүргізуге мүмкіндік береді.

Аттестациядан өту кезінде табиғи цикл пәндерінің мұғалімдерінің мәселелеріне эмпирикалық мәліметтер беріліп, терең талдау жасалды. Педагогтердің санатын тиімді алу және біліктілік тестілерінің жағдайын жақсарту бойынша жоба және күтілетін нәтижелер әзірленді.

Түйін сөздер: педагогикалық қызметкер, аттестаттау, ұлттық біліктілік тестілеу, компьютерлік тестілеу, web-тестілеу.

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Проблемы и состояние квалификационного тестирования учителей РК (по естественно-научным предметам)

Аннотация. В статье рассмотрены проблемы и состояние национального квалификационного тестирования учителей по РК. Все педагогические работники каждые пять лет проходят процедуру аттестации, на которой выявляется соответствие их уровня квалификационным требованиям. Для обеспечения процедуры аттестации новейшими системами оценки качества образования как один из этапов аттестации введено национальное квалификационное тестирование педагогических работников (НКТ), которое позволяет проводить мониторинговые исследования не только в контексте отдельного региона, но и также исследуются сведения по всей республике.

Представлены эмпирические данные и проделан глубокий анализ проблем учителей предметников естественного цикла при сдаче аттестации. Разработан проект и ожидаемые результаты по эффективному получению категории педагогов и улучшению состоянии квалификационных тестов.

Ключевые слова: педагогический работник, аттестация, национальное квалификационное тестирование, компьютерное тестирование, web-тестирование.

References

1. Zakon Respubliki Kazahstan "Ob obrazovanii" ot 27 iyulya 2007 goda № 319-III [Law of the Republic of Kazakhstan "On Education" dated July 27, 2007 No. 319-III]. [Electronic resource] – Available at: https://adilet.zan.kz/rus/docs/Z070000319 (Accessed: 22.11.2022). [in Russian]

2. Pravila attestacii pedagogicheskih rabotnikov, prikaz Ministerstva obrazovaniya i nauki Respubliki Kazahstan ot 22.01.2010 № 16, s izmeneniyami i dopolneniyami prikazom Ministerstva obrazovaniya i nauki Respubliki Kazahstan ot 31.03.2011 № 119 [Rules for certification of pedagogical workers, order of the Ministry of Education and Science of the Republic of Kazakhstan dated 01.22.2010 No. 16, as amended and supplemented by order of the Ministry of Education and Science of the Republic of Kazakhstan dated 31.03.2011 No. 119]. [Electronic resource] – Available at: https://www.ektu.kz/MONRK/16.pdf (Accessed: 22.11.2022). [in Russian]

3. Pravila attestacii pedagogicheskih rabotnikov, prikaz Ministerstva obrazovaniya i nauki Respubliki Kazahstan ot 9.04.2008 № 181 [Rules for the certification of teaching staff, order of the Ministry of Education and Science of the Republic of Kazakhstan dated April 9, 2008 No. 181]. [Electronic resource] – Available at: https://adilet.zan.kz/rus/docs/V040003401 (Accessed: 22.11.2022). [in Russian]

4. Normativnye i metodicheskie materialy KTPR, utverzhdennye Ministerstvom obrazovaniya i nauki Kazahstana, NCT [Normative and methodological materials of KTPR, approved by the Ministry of Education and Science of Kazakhstan, NCT]. [Electronic resource] – Available at: http://testcenter.kz/ru/pedagogam/nkt/o-nkt/ (Accessed: 22.11.2022). [in Russian]

5. Zhumykbayeva A., Bibekov K., Ilyassova M., Igilmanov M., Togys Zh., Kassenova M. Attitudes of course participants towards evaluation at the training courses of pedagogical staff, Cypriot Journal of Educational Science, 16(4), 1750-1764 (2021).

6. ZHolymbaev O.M., Ontagarova D.R., Sapakova A.K. «Problemy razrabotki obrazovatel'nyh programm v sootvetstvii s professional'nym standartom «Uchitel'» i ocenka rezul'tatov podgotovki vypusknikov na osnove kvalifikacionnogo testa», Mezhdunarodnyj nauchnyj zhurnal «Nauka i zhizn' Kazahstana» ["Problems of developing educational programs in accordance with the professional standard "Teacher" and assessing the results of graduate training based on a qualification test", International scientific journal "Science and Life of Kazakhstan"], 9(1), 124-128 (2019). [in Russian]

7. Voprosy sertifikacii uchitelej i nacional'nogo kvalifikacionnogo testirovaniya [Issues of Teacher Certification and National Proficiency Testing]. [Electronic resource] – Available at: https://www.internauka.org/conf/spain/24#articles (Accessed: 22.11.2022). [in Russian]

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