ISSN 2518-1467 (Online), ISSN 1991-3494 (Print)

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ

# ХАБАРШЫСЫ

## ВЕСТНИК

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК РЕСПУБЛИКИ КАЗАХСТАН

## THE BULLETIN

OF THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN

1944 ЖЫЛДАН ШЫҒА БАСТАҒАН ИЗДАЕТСЯ С 1944 ГОДА PUBLISHED SINCE 1944



SEPTEMBER СЕНТЯБРЬ ҚЫРКҮЙЕК



NAS RK is pleased to announce that Bulletin of NAS RK scientific journal has been accepted for indexing in the Emerging Sources Citation Index, a new edition of Web of Science. Content in this index is under consideration by Clarivate Analytics to be accepted in the Science Citation Index Expanded, the Social Sciences Citation Index, and the Arts & Humanities Citation Index. The quality and depth of content Web of Science offers to researchers, authors, publishers, and institutions sets it apart from other research databases. The inclusion of Bulletin of NAS RK in the Emerging Sources Citation Index demonstrates our dedication to providing the most relevant and influential multidiscipline content to our community.

Қазақстан Республикасы Ұлттық ғылым академиясы "ҚР ҰҒА Хабаршысы" ғылыми журналының Web of Science-тің жаңаланған нұсқасы Emerging Sources Citation Index-те индекстелуге қабылданғанын хабарлайды. Бұл индекстелу барысында Clarivate Analytics компаниясы журналды одан әрі the Science Citation Index Expanded, the Social Sciences Citation Index және the Arts & Humanities Citation Index-ке қабылдау мәселесін қарастыруда. Web of Science зерттеушілер, авторлар, баспашылар мен мекемелерге контент тереңдігі мен сапасын ұсынады. ҚР ҰҒА Хабаршысының Emerging Sources Citation Index-ке енуі біздің қоғамдастық үшін ең өзекті және беделді мультидисциплинарлы контентке адалдығымызды білдіреді.

НАН РК сообщает, что научный журнал «Вестник НАН РК» был принят для индексирования в Emerging Sources Citation Index, обновленной версии Web of Science. Содержание в этом индексировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index u the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Вестника НАН РК в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному мультидисциплинарному контенту для нашего сообщества.

#### х. ғ. д., проф., ҚР ҰҒА академигі

#### М. Ж. Жұрынов

Редакция алқасы:

Абиев Р.Ш. проф. (Ресей) Абишев М.Е. проф., корр.-мушесі (Қазақстан) Аврамов К.В. проф. (Украина) Аппель Юрген проф. (Германия) Баймуқанов Д.А. проф., корр.-мүшесі (Қазақстан) Байпақов К.М. проф., академик (Қазақстан) Байтулин И.О. проф., академик (Қазақстан) Банас Иозеф проф. (Польша) Берсимбаев Р.И. проф., академик (Қазақстан) Велихов Е.П. проф., РFA академигі (Ресей) Гашимзале Ф. проф., акалемик (Әзірбайжан) Гончарук В.В. проф., академик (Украина) Давлетов А.Е. проф., корр.-мушесі (Казақстан) Джрбашян Р.Т. проф., академик (Армения) Калимолдаев М.Н. проф., академик (Қазақстан), бас ред. орынбасары Лаверов Н.П. проф., академик РАН (Россия) Лупашку Ф. проф., корр.-мүшесі (Молдова) Мохд Хасан Селамат проф. (Малайзия) Мырхалықов Ж.У. проф., академик (Қазақстан) Новак Изабелла проф. (Польша) Огарь Н.П. проф., корр.-мушесі (Казакстан) Полещук О.Х. проф. (Ресей) Поняев А.И. проф. (Ресей) Сагиян А.С. проф., академик (Армения) Сатубалдин С.С. проф., академик (Қазақстан) Таткеева Г.Г. проф., корр.-мүшесі (Қазақстан) Умбетаев И. проф., академик (Қазақстан) Хрипунов Г.С. проф. (Украина) Юлдашбаев Ю.А. проф., РҒА корр-мүшесі (Ресей) Якубова М.М. проф., академик (Тәжікстан)

#### «Қазақстан Республикасы Ұлттық ғылым академиясының Хабаршысы». ISSN 2518-1467 (Online), ISSN 1991-3494 (Print)

Меншіктенуші: «Қазақстан Республикасының Ұлттық ғылым академиясы»РҚБ (Алматы қ.) Қазақстан республикасының Мәдениет пен ақпарат министрлігінің Ақпарат және мұрағат комитетінде 01.06.2006 ж. берілген №5551-Ж мерзімдік басылым тіркеуіне қойылу туралы куәлік

Мерзімділігі: жылына 6 рет. Тиражы: 2000 дана.

Редакцияның мекенжайы: 050010, Алматы қ., Шевченко көш., 28, 219 бөл., 220, тел.: 272-13-19, 272-13-18, www: nauka-nanrk.kz, bulletin-science.kz

© Қазақстан Республикасының Ұлттық ғылым академиясы, 2018

Типографияның мекенжайы: «Аруна» ЖК, Алматы қ., Муратбаева көш., 75.

\_\_\_\_\_ 3 \_\_\_\_\_

Главный редактор

д. х. н., проф. академик НАН РК

#### М. Ж. Журинов

Редакционная коллегия:

Абиев Р.Ш. проф. (Россия) Абишев М.Е. проф., член-корр. (Казахстан) Аврамов К.В. проф. (Украина) Аппель Юрген проф. (Германия) Баймуканов Д.А. проф., чл.-корр. (Казахстан) Байпаков К.М. проф., академик (Казахстан) Байтулин И.О. проф., академик (Казахстан) Банас Иозеф проф. (Польша) Берсимбаев Р.И. проф., академик (Казахстан) Велихов Е.П. проф., академик РАН (Россия) Гашимзале Ф. проф., акалемик (Азербайлжан) Гончарук В.В. проф., академик (Украина) Давлетов А.Е. проф., чл.-корр. (Казахстан) Джрбашян Р.Т. проф., академик (Армения) Калимолдаев М.Н. академик (Казахстан), зам. гл. ред. Лаверов Н.П. проф., академик РАН (Россия) Лупашку Ф. проф., чл.-корр. (Молдова) Мохд Хасан Селамат проф. (Малайзия) Мырхалыков Ж.У. проф., академик (Казахстан) Новак Изабелла проф. (Польша) Огарь Н.П. проф., чл.-корр. (Казахстан) Полещук О.Х. проф. (Россия) Поняев А.И. проф. (Россия) Сагиян А.С. проф., академик (Армения) Сатубалдин С.С. проф., академик (Казахстан) Таткеева Г.Г. проф., чл.-корр. (Казахстан) Умбетаев И. проф., академик (Казахстан) Хрипунов Г.С. проф. (Украина) Юлдашбаев Ю.А. проф., член-корр. РАН (Россия) Якубова М.М. проф., академик (Таджикистан)

«Вестник Национальной академии наук Республики Казахстан». ISSN 2518-1467 (Online), ISSN 1991-3494 (Print)

Собственник: POO «Национальная академия наук Республики Казахстан» (г. Алматы) Свидетельство о постановке на учет периодического печатного издания в Комитете информации и архивов Министерства культуры и информации Республики Казахстан №5551-Ж, выданное 01.06.2006 г.

\_\_\_\_\_ 4 \_\_\_\_\_

Периодичность: 6 раз в год Тираж: 2000 экземпляров

Адрес редакции: 050010, г. Алматы, ул. Шевченко, 28, ком. 219, 220, тел. 272-13-19, 272-13-18. www: nauka-nanrk.kz, bulletin-science.kz

© Национальная академия наук Республики Казахстан, 2018

Адрес типографии: ИП «Аруна», г. Алматы, ул. Муратбаева, 75

#### Editor in chief

doctor of chemistry, professor, academician of NAS RK

#### M. Zh. Zhurinov

#### Editorial board:

Abiyev R.Sh. prof. (Russia) Abishev M.Ye. prof., corr. member. (Kazakhstan) Avramov K.V. prof. (Ukraine) **Appel Jurgen,** prof. (Germany) Baimukanov D.A. prof., corr. member. (Kazakhstan) **Baipakov K.M.** prof., academician (Kazakhstan) **Baitullin I.O.** prof., academician (Kazakhstan) Joseph Banas, prof. (Poland) Bersimbayev R.I. prof., academician (Kazakhstan) Velikhov Ye.P. prof., academician of RAS (Russia) **Gashimzade F.** prof., academician ( Azerbaijan) Goncharuk V.V. prof., academician (Ukraine) Davletov A.Ye. prof., corr. member. (Kazakhstan) Dzhrbashian R.T. prof., academician (Armenia) Kalimoldayev M.N. prof., academician (Kazakhstan), deputy editor in chief Laverov N.P. prof., academician of RAS (Russia) Lupashku F. prof., corr. member. (Moldova) Mohd Hassan Selamat, prof. (Malaysia) Myrkhalykov Zh.U. prof., academician (Kazakhstan) Nowak Isabella, prof. (Poland) **Ogar N.P.** prof., corr. member. (Kazakhstan) Poleshchuk O.Kh. prof. (Russia) Ponyaev A.I. prof. (Russia) Sagiyan A.S. prof., academician (Armenia) Satubaldin S.S. prof., academician (Kazakhstan) Tatkeyeva G.G. prof., corr. member. (Kazakhstan) Umbetayev I. prof., academician (Kazakhstan) Khripunov G.S. prof. (Ukraine) Yuldashbayev Y.A., prof. corresponding member of RAS (Russia) Yakubova M.M. prof., academician (Tadjikistan)

Bulletin of the National Academy of Sciences of the Republic of Kazakhstan. ISSN 2518-1467 (Online), ISSN 1991-3494 (Print)

Owner: RPA "National Academy of Sciences of the Republic of Kazakhstan" (Almaty) The certificate of registration of a periodic printed publication in the Committee of Information and Archives of the Ministry of Culture and Information of the Republic of Kazakhstan N 5551-Ж, issued 01.06.2006

Periodicity: 6 times a year Circulation: 2000 copies

Editorial address: 28, Shevchenko str., of. 219, 220, Almaty, 050010, tel. 272-13-19, 272-13-18, http://nauka-nanrk.kz /, http://bulletin-science.kz

© National Academy of Sciences of the Republic of Kazakhstan, 2018

Address of printing house: ST "Aruna", 75, Muratbayev str, Almaty

\_\_\_\_\_ 5 \_\_\_\_

**BULLETIN** OF NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN ISSN 1991-3494 Volume 5, Number 375 (2018), 106 – 115

https://doi.org/10.32014/2018.2518-1467.14

UDC 378.12

K. Orazbayeva<sup>1</sup>, I. Khalitova<sup>2</sup>, N. Atemkulova<sup>3</sup>, N. Sultanova<sup>3</sup>, A. Abdrakhmanov<sup>4</sup>

<sup>1</sup>Sh. Ualilhanov Kokshetau state university, Kokshetau, Kazakhstan,
<sup>2</sup>Kazakh national pedagogical university Abay, Almaty, Kazakhstan,
<sup>3</sup>Shakarim state university of Semey, Semey, Kazakhstan,
<sup>4</sup>National defense university named after the First President of the Republic of Kazahstan – the Leader of the nation, Astana, Kazakhstan.
E-mail: guldarhan-711@mail.ru, khalitova46@yandex.ru

## EXPLORING PROBLEMS PERTAINING TO GLOBAL COMPETENCE FORMATION IN FUTURE TEACHERS

Abstract. Global education is based on the concept that information about the world is of utter importance for human existence both in the society and in nature. Formation of the world view is connected with the selection of factors in different spheres of knowledge, with cognition strategy, information processing, and different mental processes such as exchange conditions. In this regard, one of the components of the global education process is of key importance, i.e., the formation of global thinking. In the selection of a global education concept, any educational institution should be oriented toward the general cognition of the environment. Correct development of the world view can support the formation of global competence of teachers. Therefore, the present study aimed to show that the formation of global competence is an important characteristic that pedagogues need to possess in the globalized world. However, to foster the same, it is first important to define the concept clearly and to then design and implement appropriate educational programs for future teachers.

**Keywords:** global competence, professional orientation, professional competence, knowledge, skill, abilities, concept, technology, process, integration.

**Introduction.** In the contemporary society, there is a demand for professionally skilled and competent pedagogues who are capable of solving various problems arising every day and of correctly assessing advancements in education and science, and who are interested in enhancement of their professional efficiency, are highly responsible, and are capable of planning their future. There is a need for specialists who are willing to accept the new concepts of education; who can think globally, act locally, and be active socially. In recent years, the global competence of a professional pedagogue has gained attention, leading to constant changes in social practice, restructuring of the educational sphere, and appearance of innovative schools and unique pedagogical systems. Therefore, instructional design and technologization of the educational process is considered a need of the time.

The need to connect the professional competence of a pedagogue with global competence arose due to continuous social development, technologization of education, intensification of information processes, variability of social events, and updated thinking paradigms, while globalization dynamics continued to affect the educational sphere. According to Robertson's definition, globalization is the process of increasing influence of different factors of international significance on the social reality in separate countries [1]. Many subsequent researchers and academicians have used this definition as a basic one because it covers different spheres; economic and political, and information and social, and it is the earliest and most comprehensive definition of this notion [1, 2]. By the mid-1990s, the concept of globalization was widespread, and it was interpreted as one of the most important constructs in the contemporary global society. Waters noted, "while the basic concept of the 1980s was postmodernism, globalization may become the key idea of the 1990s, meaning the human transition to the third millennium" [3].

=106 ==

However, the book "Globalization Theory: Approaches and Controversies", edited by Held, D. and McGrew, A. pointed out only to the existence of "modern theories and narratives of globalization, applied and normative" (Introduction: Globalization at Risk, 2007), but it did not mention the proponents of these theories [4]. The book is a collection of articles by several scientists on specific issues related to globalization. Instead of a single comprehensive theory, there are many fragmentary notions on globalization. As a research object, it is a whole scientific area, which has been acknowledged by the recent publication of the "Encyclopedia of globalization" [5]. And appearance of encyclopedias proves completely that the boundaries of theory are lost forever. That is why we can only share Taylor's opinion who in the middle of 90-s compared theories of globalization with appeared in the end of 18th century notion of internationalization and suggested that new term is able "to repeat the same chaotic way and come to the same hollow final as its 200-years old predecessor" [6]. To avoid this, and to capitalize on the advantages of globalization, there is an urgent need to develop a clear understanding of the competencies that are required in each field to match the rapid changes that occur owing to globalization and its impact. The present paper aimed to show that the formation of global competence is one of the important problems that need to be addressed, and appropriate solutions need to be identified.

The Concept of "Competence". The term "competence" is used by scientists from various spheres. For instance, researchers have conceptualized and studies different forms of competence such as professional, pedagogical, social, legal, and management competence. According to the Pedagogical dictionary, the term "competence" (Lat. competentia) has two meanings. First, it is defined as the scope of power granted to a certain organization or an individual on the basis of legal decrees or other regulations. Second, it is explained as the knowledge and experience possessed by an individual on a certain sphere [7]. Thus, the latter considers "competence" as a measurable aspect of an individual's knowledge regarding a specific area of expertise. In the field of education, the idea of competence is considered to distinguish general individuals from professional specialists based on their functional, cognitive, and personal attributes, and on their educational and professional qualifications.

One of the aspects of "competence" is "educational competence," according to which, the level of the future pedagogue's development is related to the qualitative implementation of the educational content in compliance with higher school graduates training standards. Additionally, this concept is used to determine "educational results." Competence is determined in terms of the graduate's level of training. ability and skills in implementing the methods and tools of one's profession, and his/her level of achievement of the objectives and tasks in a different environment. Thus, competence is considered as an indicator of the extent of an individual's development or his/her performance on educational outcomes. In this regard, competence, as opined by Selevko (2004), is an integral feature of an individual's personality, which potentially determines future academic activity and specialization based on knowledge and experience [8]. Dakhin (2001) revealed that the essence of a pedagogue's educational competence lies in his/her potential to exercise various comprehensive kinds of activity. Therefore, he considers competence as a personal characteristic. According to his interpretation, educational competence can be achieved by focused teaching, while pedagogical competence is formed only in the course of task performance in certain complex situations [9]. Dakhin (2001) explained that some researchers use the terms "qualification" to explain "competence." However, the distinction between these two terms is made based on the levels of the following criteria:

- ability and level of knowledge utilization (quality and use of knowledge);
- scope and range of knowledge;
- ability to efficiently arrange and plan one's own work;
- ability to creatively apply knowledge in emergency situations;
- ability to engage in effective practical actions (e.g., machinery, technology, and labor); and
- ability to quickly adapt to organizational changes.

Having examined the concept of competence, the next section presents some of the major models of competence.

**Theoretical Models of Competence**. Kabardov and Artsyshevskaya (1996) defined "competence" by comparing it to "ability." They defined competence as a behavior required for the establishment of essential skills [10]. Based on this perspective, "competence" is considered to emerge from education [11].

\_\_\_\_\_107 \_\_\_\_\_

Khovov compared the terms "qualification" and "competence," and noted that the latter has a wider meaning as compared to the former [12]. Thus, in addition to professional knowledge and general proficiency, which determine an individual's qualifications, the concept of competence includes initiative, cooperation, ability, communicative skills, teaching, assessment, logic, perception and use of information, and other such characteristics. Based on this perspective, an individual's personality characteristics, such as activeness and social communication, are considered to impact his/her "competence." Further, competence is used as an indicator of professional training level (table 1). Thus, competence is the readiness and ability to perform certain duties in compliance with theoretical knowledge and personal practical experience.

Competence model	Traditional qualification model
1. Result oriented/development of performance assessment and control tools	Result of teaching; it is different for every student
2. Flexible in terms of class assignments/"steps" in teaching vary across individuals	Non-flexible in terms of class assignments/"steps" in teaching are the same for all individuals
3. Includes knowledge, general proficiency, skills, and personality characteristics	Includes knowledge and general proficiency alone
4. Measurement is qualitative and is based on simple (or univocal) features.	Measurement is quantitative and is justified by the appropriate size.

Table 1 – Relationship between "qualification" and "competence" [12]

Other research on the meaning of "competence" has also paid attention to various components of competence. For instance, Kholodnaya (1992) defined competence as a special kind of knowledge on a subject, which ensures efficient decision-making in the respective sphere [13]. Similarly, Kudaibergenova (2008), in her work "Nature of competence in personality development," explained that while "competence" pertains to understanding the information one is exposed to, knowledge pertains to the ability to make decisions using this information [14].

Foreign authors have studied various aspects of competence. For instance, Fessler (2008) revealed that the following three types of environmental influences affected the establishment of professional competence [15]:

- "Personal environment" (life experiences, family, positive and negative events, crises, individual inclinations and interests, etc.);

- "Organizational environment" (rules, management style, public opinion, social expectations, professional arrangement, etc.);

- "Career environment" (education, professional establishment, competence growth, enthusiasm, disappointment, stabilization and stagnation, end of career, etc.).

Thus, Fessler's idea of the influence of career environment indicates that an individual's professional growth is affected by his/her exposure to varied activities. Evidently, this notion feeds into the concept of "global competence," which is the focal point of individuals' professional growth today. According to Fessler (2008), competence pertains to complex psychological characteristics that ensure the efficient use of certain functions to capitalize on new resources to adjust systematically to changing circumstances. As explained in the Introduction, globalization is leading to diverse experiences that require individuals to adjust quickly to a dynamic and rapidly changing society. Thus, to meet the increasing demand for global competence and to cater to the needs of the 21<sup>st</sup> century, pedagogues also need to emerge as unique specialists, in other words, they need to be considered a "professional" in their field.

**Professional Competence.** The term "professional" refers to a competitive, highly professional, intelligent, socially multifaceted, competent specialist with creative potential, who is in high demand [16].

Proponents of contemporary psychology and pedagogy, Zeer (2000) suggested that the concept of professionalism comprised the following constructs:

- professional orientation;
- professional competence;
- qualities essential to the profession; and
- psychological characteristics essential to the profession [17].

#### ISSN 1991-3494

Out of these, our area of focus is "professional competence"; however, it is important to note that professional development and the formation of structural content occurs owing to the interaction among and integration of these four components. They are the basis for the formation of integrated professional behavior. The latter, in turn, ensures competitiveness, professional mobility, and quality of professional activity, and allows for professional growth, improvement of skills, and opportunity to advance (Zeer, 2000).

Professionalism is considered as a system of priority motivations in which the interests, needs, and professional abilities of the individual determine his/her professional orientation. Markova (1996) defined professional orientation as "the system of individual's self-attitudes and global attitudes [18]. Individual's activity and order, uniformity of behavioral patterns allow him/her to resist external and internal negative impact, being the basis of professionalism and self-development, and are the benchmarks in the assessment of purposefulness and morals." Thus, the basic conditions for the formation of an individual's professional orientation arise out of the formation of his/her pedagogical and professional qualities.

In the context of education, Oja (2009) put forth a model of teacher's professional competence, according to which professional development is not dependent on the length of service but is determined by teacher's cognitive development [19]. Indeed, the professional development of a teacher occurs in the course of his/her professional activities, along with the combined influence of his/her education, experience, and personal professional competence. Bauer, Kopka, and Brindt (2006) suggested that knowledge, actions, and ethics together play a crucial role in the development of professional competence [20]. Further, they proposed that competent pedagogues are aware of the structure and strategies of their knowledge, which comprises didactical, scientific, and organizational components. Therefore, such individuals are able to make pedagogically sensitive and efficient responses. They added that the professional ethics of successful pedagogues include their attitude toward themselves, toward pedagogy, toward student-teacher relationships, etc. [20]. Emerging from this concept of professional competence is that of "pedagogic professional competence," which pertains to the professional competence of teachers.

**Pedagogic Professional Competence.** Grishin (1979) suggested that pedagogic competence is a core skill of professional teachers, and that it comprises their communicative, constructive, and organizational abilities. Additionally, he emphasized that teaching offers the pedagogue an opportunity to use these abilities [21].

Kuzmina (1982) explained that pedagogic professional competence is a personal characteristic that comprises the following five elements [22]:

- 1. Special and professional competence pertaining to the studied subjects,
- 2. Methodological competence in the formation of knowledge and skills,
- 3. Social and psychological competence in the relationship process,
- 4. Individual activity and auto-psychological competence in personal achievements and failures, and
- 5. Differentiated psychological competence in the abilities and motivations of pedagogues.

In this regard, Larionova (2004) revealed that studies on professional pedagogical competence pertained to "designating the volume of competence" and "scope of powers in the sphere of activities." [23].

According to [23], though competence is a generic term that denotes an individual's ability and knowledge related to his/her area of work, when the term is used with reference to a person with a certain social and professional status, it characterizes his/her volume of knowledge, concerns and skills, complexity of problems to be solved, and tasks to be accomplished.

In the context of globalization and the competences required in the 21<sup>st</sup> century professional competence should be based on the development of interactive and analytical abilities to understand social development dynamics and individual professional activity. Thus, pedagogic professional competence is viewed as a teacher's unique functional characteristic, and the ability to assess a situation correctly and take appropriate action. For instance, a skilled pedagogue will be capable of implementing a self-education oriented high school curriculum that will help students adopt practical skills that they can practice in their future professional activity.

**Results.** The present article aimed to understand pedagogic activity in the context of globalization by examining issues related to the global competence of pedagogues. The literature revealed a systemic structure in which the external and internal factors are closely related to each other, with motivational and

=109 =

moral, cognitive, and functionally estimative components. The motivational and moral relationships of an individual (personal qualities that determine the pedagogue's professional pedagogical orientation and status) and his/her curiosity (the cognitive component) ensure that teaching is conducted as a consciousness activity using a set of skills (the functional component) that have been tested over time, to ensure the efficient use of personal abilities. Evidently, all the three components are interrelated. For instance, the formation of motivational and moral relationships occurs not only through emotions, but also through the use of professional knowledge and skills. On the other hand, an individual is capable of using his/her knowledge and professional skills appropriately only when he/she has an appropriate attitude toward the pedagogic activity in the context of globalization. Each stage of the formation of a future pedagogue' professional competence is influenced by his/her personality and the various components of the concept of competence. Thus, the scope of the individual's professional and general development is widened. However, a teacher's attitudes toward the educational process is, in turn, affected by this gradual development, increase in his/her basic and general knowledge, and experiences gained through practical training [24].

With the emerging importance of global competence, several researchers are now focusing on this topic. For instance, according to Jacques Delors (1996), this research attention has led to the emphasis of the following four basic educational principles [25]:

- Learning to live together: Developing knowledge about others, their history, traditions, and mindset;

- Learning to gain knowledge: Accounting for rapid changes owing to scientific progress and the emergence of new forms of economic and social activity;

- Learning to work: Improving professionalism, and in a wider sense, gaining competence by managing various, possibly unpredictable, situations, facilitating team work; and

- *Learning to live:* Acknowledging that every individual has a hidden treasure comprising memory, ability to think, imagination, physical abilities, aesthetic sense, and communication ability.

Thus, global competence is viewed as the ability to work in a way that helps achieve individual professional goals as well as facilitates team work, development of general competences, and appropriate decision-making according to changing circumstances [25]. Croply (1989) observed that the globalization of education leads to the development of a teaching strategy through which teachers improve their knowledge using methods that address issues related to globalization [26].

In this regard, we agree with the opinion of Brazhe (1992) that, in addition to basic (scientific) knowledge, the professional competence of an individual working in a "man-man" system comprises his/her value-conscious orientation as a specialist, activity motivations, global self-perception, communication style with co-workers, their common culture, and ability to develop one's creative potential [27]. Specifically, the teacher's profession comprises the exploration of various teaching methodologies, the ability to understand the mental world of students and to exert influence on it, having a respectful attitude toward students, and possessing important professional and personal skills. Lack of any of these components greatly reduces the efficiency of teaching work, which proves the need for global thinking as an important component of global competence [27].

In the present globalized world, teachers have a dual task of having to train a conscious citizen of his/her country and a global citizen, which will allow in a dialectic combination of both responsibilities to ensure productive self-actualization of the personality based on the perception of universal democratic and humanistic values. Quantitative research conducted by numerous international and national organizations acknowledges the lack of the required competences in high school graduates with regard to professional abilities in a constantly changing global environment. Specifically, these future pedagogues do not understand or perceive the essence of the globalization process and its impact on the development of education. Therefore, there is an urgent need for scientists from various countries to review teacher training methods to enable them to work in the contemporary globalized society [28].

A professor at Minnesota University, Craig Kissock, describing the situation in the American pedagogic education, added, "the contemporary culture of pedagogical education is rather local and serves to meet the requirements of nearby schools but not those of the globalizing world's citizens" [29].

According to the analytical document "Training American teachers for globalization epoch: imperatives of changes," the global competence of a pedagogue should entail complex knowledge about the world's regions, diversity of cultures, and global problems, as well as the ability to efficiently cope with the global environment while being driven by a responsible attitude. In particular, it notes that a pedagogue with adequate global competence exhibits the following characteristics:

1) knowledge of major international subjects and expertise on global problems related to his/her major;

2) skills to teach his/her students to analyze primary information sources from various parts of the world and admitting various points of view; and

3) an orientation to groom students as responsible citizens of both local and global societies [30].

The present review revealed that these effective learning skills for the 21<sup>st</sup> century, also called as global competencies, also comprise personal characteristics such as perseverance, insistence, purposefulness, stress resistance, and flexibility [31].

The present analysis of psychological and pedagogic literature revealed the basic universal competence and specific competences comprising knowledge and skills that are necessary for teachers in the globalized world. These competences are multifunctional, subject-dominated, and have a wide scope, and their use helps individuals solve various problems in their everyday and social life. These competencies account for the essential psychological qualities and perceptions of teachers. Therefore, it is recommended that the contemporary system of professional pedagogic education focuses on a competence-based approach for training future professional teachers [32].

**Discussion.** The present study aimed to highlight the urgent need for the formation of global competence in today's pedagogues. By reviewing relevant literature on globalization and its impact on all aspects of life, this study also attempted to identify ways to address problems related to the formation of global competence. The thematic review conducted in this study revealed that the first step towards this is to clearly define global competence. This section discusses the findings of the present review further.

**Components of Competences for the Future Generation.** With the rapid changes in science and technology, each teacher is expected to be perceptive of students' need for knowledge, which in turn leads to the students' active involvement in research and creativity. Such a teacher can work anywhere in this world. The present examination of literature on competence provided a deep understanding of the problems that need to be addressed to tackle the demands of a globalized world. The related competences have been summarized in table 2.

Levels of competence	Interpretation/Understanding
1. Data	I have access to external pieces of information.
2. Information	I know/I have learnt/I found out.
3. Knowledge	I have integrated frameworks of information. I can explain the information to someone else.
4. Skills	I can do it.
5. Know-how	I know how to do it, I can do it, and I can explain how to do it to someone else.
6. Competence	I am more capable than the others at explaining what to do and how to do it, but also at doing it.
7. Expertise	I am an expert at doing it, as well as at understanding what to do and explaining how to do it.

Table 2 – Levels of competence by Durand [38]

Competence is an estimative category characterizing an individual as a subject of certain activity in the social development system. It comprises the abilities of an individual to suggest appropriate ideas, to make responsible decisions, and to plan and perform actions conductive to efficient achievement of goals. It is the individual's orientation toward comprehensive practical learning to ensure successful work in the basic spheres of life.

The present findings revealed that competence consists of the following core components:

- stimulation, perceiving values, and business proficiency required for certain kinds of activity;
- perception about oneself through one's role in the social structure; and
- understanding mutual relationships and social order.

As evident from table 1 presented in the section on theoretical models of competence, "qualification" is a more narrow term as compared to competence. Therefore, in the teaching/learning process in an organization, the following points should be noted:

- Qualification and competence do not replace each other, they are complementary characteristics of specialists.

- Qualification is formed on the basis of obtained and developed competencies.

- The formation of competence is influenced by several factors.

Considering that current high school graduates will form the workforce in future, the practical implication of this competence model lies in the understanding that competence pertains to individual's adaptability to changes, predictability of behavior, and human flexibility in the face of environmental changes.

Therefore, Shishov and Agapov suggested that educational institutions should establish the following competences in members of the future workforce:

1. Political and social competence: This pertains to the individual's ability to take responsibility.

2. Competence related surviving in a multicultural society: This pertains to interethnic consensus and possessing a respectful attitude to other cultures and religions.

3. Competence in writing and in verbal communication: This important skill also includes the knowledge of several languages.

4. Competence related to life in an information-rich society. This includes the knowledge of new technologies, ability to choose what is needed from the information available, and ability to critically assess information.

5. Ability to acquire knowledge throughout one' life, which is the basis of personal and public life [33].

Choshanov (1996) added that knowledge, skills, and abilities were combined to form "competence."[34]. A competent individual differs from others in terms of his/her critical view, thinking, ability to update knowledge and learn new information, and ability to use new resources for finding solutions to novel problems. However, competence is not only a cognitive ability, but it also includes a procedural component (skills). Therefore it not only involves the identification of solutions to problems, but also involves their actual implementation. Consequently, Choshanov (19960 suggested that competence means mobility, curiosity, methodological flexibility, and mental criticism.

In the context of education, Markova (1996) put forth that pedagogical professional competence comprises the following elements:

- Professional education,

- Professional pedagogic activity, and

- Professional teacher's psychological principles that are compliant with the profession.

Personal characteristics of the teacher, ensuring the development of knowledge and skills

**Characteristics of a Competent Pedagogue.** According to Pavlyutenkov (1990), a pedagogue's professional competence lies in his/her ability to fulfill the functions of an effective teacher, which is related to possessing a deep knowledge of the subject matter, learning the scope of work in today's world, and possessing the following important qualities of a pedagogue [35]:

- Ability to make decisions related to oneself and to facilitate self-development,

- Ability to fight self-doubt,
- Ability to identify the most efficient method to achieve goals, and

- Ability to utilize one's knowledge and experience to determine the nature and characteristics of an activity with reference to the current circumstances.

In addition, having studied professional competence, Larionova (2004) concluded that "intercultural, intersectoral knowledge, skills, abilities for successful activity are required for various professional associations." [23] They (intercultural, intersectoral knowledge, skills, abilities) are the invariant aspects of the macro- and micro-skills of professional competence required for successful professional activity in any field. On the other hand, pedagogical professional competence is the aspect of professional competence that is unique to teachers. It comprises three kinds of interrelated competences that develop simultaneously; the individual style of pedagogy, the unique image of a specialist, and personality characteristics of the individual

These basic, main, and special competences interact with each other and are used in various situations based on the nature and complexity of the task. Teachers' global competence is considered as a special competence.

Finally, the nine competences identified by Zimnyaya (2003) provide a comprehensive list of competences that are desirable for future pedagogues working in the context of globalization [36]:

*Competence of an individual as a person, subject, and pedagogue.* Healthcare competence: e.g., knowledge about health standards, understanding of the dangers of smoking, physical culture and freedom, and responsibility regarding choosing a lifestyle.

- Integration competence: e.g., structuring knowledge and extending the knowledge obtained.

- Civil competence: e.g., knowledge of and exercising the rights and liabilities of a citizen, freedom and responsibility, self-confidence, and civil duties.

- Self-improvement competence: e.g., self-regulation, self-development, purpose of life, language development, perception of the native language culture, and learning foreign languages.

Competence pertaining to the social impact on individuals and the social sphere

- Competence pertaining to social relationships: e.g., public, collective, and family cooperation; expressing tolerance and respect toward other races, gender, nations, statuses, and religion.

- Communication competence: e.g., written, verbal, dialogue, monologue, knowing and preserving traditions, and business correspondence.

Competence pertaining to individual activity

 Competence regarding cognitive activity: putting and solving cognitive matters, identifying nonstandard solutions, problem situations;

- Functional competence: e.g., playing, studying, labor, work, and nature and types of economic activity.

- IT competence: e.g., accepting information, processing and sending information, mass media, multimedia technologies, computer knowledge, and electronic devices.

Summarizing the above opinions on "global competence," we can identify the components of "pedagogue's global competence." Specifically, a pedagogue's global competence is the ability to consciously perceive the impact of global processes on the academic process, to understand the influences of the multinational and multicultural environment, and to engage in successful teaching work in any global environment. This understanding will help us develop appropriate programs for the development of the global competence in future pedagogues to help them cater to the dynamic and constantly changing global educational environment. Some such steps are already under way in Kazakhstan.

**Conclusion.** A pedagogue is one of the core factors for the development of professionals who can work in a globalized society. A valuable decision towards the integration of the higher education system on the international level was taken in lisbon convention of the council of europe and unesco in 1997. Kazakhstan used that document as the basis and facilitated its efficient use it in the academic process. In 1998, 4 western european countries (germany, italy, france, and the united kingdom) adopted the sorbonne declaration on the identification of educational systems and structures, and in 1999, educational delegates from over 30 european countries signed the bologna declaration [37]. Kazakhstan joined it in 2010 and wished to join the uniform system of european education. Developments and initiatives in kazakhstan's national education are aimed to bring about improvement in the global space and quality. By supporting the lisbon convention on the recognition of qualifications concerning higher education, signing the sorbonne declaration on harmonization of the architecture of the european higher education, and by joining the bologna process, our country successfully complies with the new requirements of education, which reflects the republic's political and economic stance. This is a step towards the improvement of kazakhstan's educational system. It has resulted in transition of all higher school institutions, including pedagogic colleges, to the european credit system. The current system of pedagogic education in kazakhstan comprises the following components of continuous education: pedagogic college, bachelor's program, master's program, and phd program. In addition, several international universities have been established in kazakhstan (e.g., international kazakh-turkish hoja ahmet vassawyi university, international university of information technologies, international kazakh-german university, international humanitarian and technical university, international kazakh-british university, international suleiman demirel university,

university of international relations, and kimep university). We hope that graduates from these institutions for higher studies will be able to work anywhere in the world. Further, other new initiatives have been introduced, including three-language education since kindergarten. Owing to this feature, school pupils have begun showing more interest in studying languages and students will be able to study abroad in future. Moreover, foreign specialists are now being appointed as academic supervisors of master's and phd students, which offer future pedagogues an opportunity to study in foreign countries.

Globalization affects almost all the spheres of human lives; however, the present review revealed a lack of formal definitions of "globalization" and "global education." Indeed, academic philosophers, pedagogues, and psychologists have offered some explanations on the concept of global competence, with special reference to pedagogical competence, future studies need to formally define *pedagogue's global competence* and to explain the components and structure of this term. Such information can be then used to develop teacher education programs that groom future pedagogues for working in a globalized world.

#### REFERENCES

[1] Robertson R. (1987) Globalization Theory and Civilization Analysis // Comparative Civilizations Review. Vol. 17, N 17. Article 3. https://scholarsarchive.byu.edu/ccr/vol17/iss17/3.

[2] Robertson R., Lechner F. (1985) Modernization, Globalization and the Problem of Culture in the World-Systems Theory // Theory, Culture & Society. 2(3): 103-117. DOI: 10.1177/0263276485002003009.

[3] Waters M. (1995) Globalization. Routledge, London, 140.

[4] McGrew A., Held D. (2007) Globalization Theory: Approaches and Controversies, Cambridge: Polity. ISBN 978-0-745-63210-0.

[5] Robertson R., Scholte J., Downie D. (2006) "Encyclopedia of Globalization". Politics Faculty Book and Media Gallery. 19. ISBN 9780415973144.

[6] Taylor P. (1995) Beyond Containers: Internationality, Interstateness, Interterritoriality. Progress in Human Geography 19(1): 14. DOI: 10.1177/030913259501900101.

[7] Andreeva G., Vyalikova G., Tyut'kova I. (2005) A Brief Pedagogical Dictionary: educational handbook. M.: V. Sekachev, 181 p.

[8] Selevko G. (2004). Competences and their classification // National education, 4: 138-1043.

[9] Dakhin A. (2001) Competency and competence: how much for a Russian schoolchild? // Public Education, 4: 136-144.

[10] Arcishevskaja E., Kabardov M. (1996) Psychology Issues [Voprosy psihologii] 1: 34-49 (in Russian).

[11] Globalizm kak fenomen i mirovozzrenie (1999) // Mir psihologii. 3:21-24.

[12] Khovov O. (1999) // Specialist [Specialist] 10: 13-17.

[13] Kholodnaya M. (1997) The psychology of intelligence. M.: IPRAN Press.

[14] Kudajbergeneva K. (2008) Kuzyrlylyk bilim sapasynyn kriteriji: adisnamalyk zhane gylymi-teorijalyk negizderi. Almaty, 2008. 328 p.

[15] Fessler D. (1989). Home education regulations: What parents need to know about Ohio home education regulations". Dayton, OH: Cassidy & Nells Pub.

[16] Dusavitskiy A. (1996) Development of personality in teaching activity. M.: Dom pedagogiki, 204 p.

[17] Zeer E. (2000) Psychology of personality-oriented professional education. Yekaterinburg: USVPU.

[18] Markova A. (1995). Pedagogy [Pedagogika] 6: 55-63 (In Russian).

[19] Oja S. (2009). Teachers: Ages and Stages of Adult Development // In Perspectives on Teacher Professional Development / Edited by M. Holly, C. McLoughlin. London: Falmer Press. P. 119-154.

[20] Bauer K., Kopka A., Brindt S. (2006). Pedagogical Professionalism and studies. Weinheim und München. Accessed January 11 2015. www.bolognacenter.com/ru/node/711.

[21] Grishin E. (1979). Theory and practice of teacher's professional and ethical training. M.: Moscow State Pedagogical Institute.

[22] Kuzmina N. (1982) // Soviet pedagogics [Sovietskaya pedagogika] 3: 9-14.

[23] Larionova G. (2004) Competences in professional training of higher school students: Monograph. Chelyabinsk: ChSA.

[24] Verbitskiy A. (1991) Active teaching in higher school: context approach. M.: Vysshaya shkola.

[25] Delors J. (1996) Learning: The Treasure Within. PARIS: UNESCO.

[26] Croply A. (1989) "Global Learning". In The International Encyclopedia of Education. Supplementary Issue. New York: Pergamon.

[27] Brazhe T. (1992) // Pedagogika [Pedagogy] 2: 71-74.

[28] Schneider A. (2007) To Leave No Teacher Behind: Building International Competence into the Undergraduate Training of K.-12 Teachers: Summary Report // In Ann Imlah Schneider, 4. Washington: DC. Accessed 15 January 2013. http://www.internationaledadvice.org.

[29] Kissock C. (2007) "Foreword to the book". In Intercultural Student teaching: A Bridge to Global Competence, edited by K. Cushner & S. Brennan, 5-12. Lanham: Rowman & Littlefield Education.

[30] Green M., Olson C. (2003) Internationalizing the Campus: a User's Guide. American Council on Education. Washington DC: ACE.

[31] Shaidullina G. (2006) Global competence formation of an elementary school teacher (Doctoral dissertation). Birsk State Social and Pedagogical Academy, Birsk, Russia. Accessed 16 April 2015. http://www.dissercat.com.

[32] Fomina N. (2011) "The use of quasi-professional activity in professional competence formation of the future teachers." Accessed 16 April 2015. http://teachenglish.ucoz.ru/publ/ispolzovanie\_kvaziprofessionalnoj\_dejatelnosti\_dlja\_formirovanija\_professionalnoj\_kompetentnosti\_budushhikh\_uchitelej/1-1-0-6

[33] Shishov S., Agapov I. (2001) Competence approach to education as a necessity // World of education – education in the world, 4: 8-19.

[34] Choshanov M. (1996) Flexible technology of problem-based modular training. M.: Nar. obrazovanie.

[35] Pavlyutenkov E. (1990) Professional orientation management in high school. Vladivostok.

[36] Zimnyaya I. (2003) Key competences - new paradigm of educational result // Higher education today, 5: 34-32.

[37] Medvedev S. (2009) Bologna process. Russia and globalization // Higher education in Russia, 1: 10-12.

[38] Durand T. (2005) The Alchemy of Competence. Strategic flexibility. Saint-Petersburg: Piter.

### К. Оразбаева<sup>1</sup>, И. Халитова<sup>2</sup>, Н. Атемкулова<sup>3</sup>, Н. Султанова<sup>3</sup>, А. Абдрахманов<sup>4</sup>

<sup>1</sup>Ш. Уәлиханов атындағы Көкшетау мемлекеттік университеті, Көкшетау, Қазақстан,

<sup>2</sup>Абай атындағы Қазақ ұлттық педагогикалық университеті, Алматы, Қазақстан,

<sup>3</sup>Семей қаласының Шәкәрім атындағы мемлекеттік университеті, Семей, Қазақстан,

<sup>4</sup>Қазақстан Республикасының Тұңғыш Президенті – Елбасы атындағы

ұлттық қорғаныс университеті, Астана, Қазақстан

#### БОЛАШАҚ МҰҒАЛІМДЕРДІҢ ЖАҺАНДЫҚ ҚҰЗІРЕТТІЛІГІН ҚАЛЫПТАСТЫРУ ПРОБЛЕМАЛАРЫ

Аннотация. Жаһандық білім қоғамда, сондай-ақ табиғатта адамның өмір сүруі үшін дүниетаным туралы ақпараттың маңыздылығы туралы тұжырымдамаға негізделген. Адамның дүниетанымын қалыптастыру эртүрлі білім салаларында факторларды таңдаумен, танымдық стратегиямен, ақпараттық өңдеу және айырбастау шарттары сынды әртүрлі ментальдық процестермен байланысты. Сонымен қатар, жаһандық білім беру компоненттерінің бірі – жаһандық ойлауды қалыптастырудың маңызы зор. Жаһандық білім беру тұжырымдамасын таңдауда білім беру мекемелері даму үдерісінде қоршаған ортаны ортақ тануға бағдарлауы тиіс. Дүниетанымды дұрыс қалыптастыру мұғалімдердің жаһандық құзізеттіліктерін қалыптастыруда демеу бола алады. Сондықтан аталмыш зерттеуде жаһандық құзіреттілікті қалыптастыруға ерекше көңіл бөлу және оларды арттыру жолдарын айқындау қажеттігі айтылған. Жасалған тұжырымдар жаһандық құзіреттіліктің жаһандалған әлемде мұғалімдерде болуы тиіс маңызды мінездеме болып табылатындығын айқындап берді. Дегенмен, мұны іске асыру үшін, ең алдымен, тұжырымдамасын нақты анықтап, содан кейін – болашақ мұғалімдерге арналған сәйкес білім беру бағдарламаларын әзірлеп, ендіру қажет.

**Түйін сөздер:** жаһандық құзыреттілік, кәсіби құзыреттілік, кәсіптік бағдарлау, білім, қабілет, дағды, тұжырымдама, технология, процесс, интеграция.

#### К. Оразбаева<sup>1</sup>, И. Халитова<sup>2</sup>, Н. Атемкулова<sup>3</sup>, Н. Султанова<sup>3</sup>, А. Абдрахманов<sup>4</sup>

<sup>1</sup>Кокшетауский государственный университет им. Ш. Уалиханова, Кокшетау, Казахстан, <sup>2</sup>Казахский национальный педагогический университет им. Абая, Алматы, Казахстан,

<sup>3</sup>Государственный университет имени Шакарима города Семей, Семей, Казахстан,

<sup>4</sup>Национальный университет обороны им. Первого Президента Республики Казахстан – Елбасы, Астана, Казахстан

#### ПРОБЛЕМЫ ФОРМИРОВАНИЯ ГЛОБАЛЬНОЙ КОМПЕТЕНТНОСТИ БУДУЩИХ УЧИТЕЛЕЙ

Аннотация. Глобальное образование основано на концепции о том, что информация о мире имеет большое значение для существования человека, как в обществе, так и в природе. Формирование мировоззрения связано с отбором факторов в различных областях знаний, со стратегией познания, обработкой информации и различными ментальными процессами, такими как условия обмена. При этом большое значение имеет один из компонентов процесса глобального образования – формирование глобального мышления. При выборе концепции глобального образования учреждение образования в процессе развития должно ориентироваться на общее познание окружающей среды. Правильное построение мировоззрения может послужить опорой при формировании глобальной компетентности педагогов. Поэтому в настоящем исследовании было показано, что необходимо обратить внимание на формирование глобальной компетентности, и определить пути их повышения. Выводы показали, что глобальная компетентность является важной характеристикой, которой педагоги должны обладать в глобализированном мире. Однако, чтобы способствовать этому, в первую очередь важно четко определить концепцию, а затем – разработать и внедрить соответствующие образовательные программы для будущих учителей.

**Ключевые слова**: глобальная компетентность, профессиональная компетентность, профессиональная ориентация, знание, умение, навыки, концепция, технология, процесс, интеграция.

### Publication Ethics and Publication Malpractice in the journals of the National Academy of Sciences of the Republic of Kazakhstan

For information on Ethics in publishing and Ethical guidelines for journal publication see <u>http://www.elsevier.com/publishingethics</u> and <u>http://www.elsevier.com/journal-authors/ethics</u>.

Submission of an article to the National Academy of Sciences of the Republic of Kazakhstan implies that the described work has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis as electronic preprint, or an see http://www.elsevier.com/postingpolicy), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. In particular, translations into English of papers already published in another language are not accepted.

No other forms of scientific misconduct are allowed, such as plagiarism, falsification, fraudulent data, incorrect interpretation of other works, incorrect citations, etc. The National Academy of Sciences of the Republic of Kazakhstan follows the Code of Conduct of the Committee on Publication Ethics (COPE), follows the COPE Flowcharts for Resolving Cases of Suspected and Misconduct (http://publicationethics.org/files/u2/New Code.pdf). To verify originality, your article may be checked by the Cross Check originality detection service http://www.elsevier.com/editors/plagdetect.

The authors are obliged to participate in peer review process and be ready to provide corrections, clarifications, retractions and apologies when needed. All authors of a paper should have significantly contributed to the research.

The reviewers should provide objective judgments and should point out relevant published works which are not yet cited. Reviewed articles should be treated confidentially. The reviewers will be chosen in such a way that there is no conflict of interests with respect to the research, the authors and/or the research funders.

The editors have complete responsibility and authority to reject or accept a paper, and they will only accept a paper when reasonably certain. They will preserve anonymity of reviewers and promote publication of corrections, clarifications, retractions and apologies when needed. The acceptance of a paper automatically implies the copyright transfer to the National Academy of Sciences of the Republic of Kazakhstan.

The Editorial Board of the National Academy of Sciences of the Republic of Kazakhstan will monitor and safeguard publishing ethics.

Правила оформления статьи для публикации в журнале смотреть на сайте:

## www:nauka-nanrk.kz

## ISSN 2518-1467 (Online), ISSN 1991-3494 (Print)

## http://www.bulletin-science.kz/index.php/ru/

Редакторы М. С. Ахметова, Т. М. Апендиев, Д. С. Аленов Верстка на компьютере Д. Н. Калкабековой

Подписано в печать 10.10.2018. Формат 60х881/8. Бумага офсетная. Печать – ризограф. 11,2 п.л. Тираж 500. Заказ 5.

Национальная академия наук РК 050010, Алматы, ул. Шевченко, 28, т. 272-13-18, 272-13-19