F. Salybekova* [ID] , **N. Almetov** [ID] , **G. Karbozova** [ID] ,

A. Shvaikovskiy [ID] , **A. Suyuberdiyeva** [ID]

M. Auezov South Kazakhstan University, Shymkent, Kazakhstan
*e-mail: sfm_82@mail.ru

UPGRADING PRE-SERVICE FOREIGN LANGUAGE TEACHERS' PROFESSIONAL COMPETENCES BY MEANS OF THE 4C'S EDUCATIONAL MODEL IN XXI CENTURY

This research is aimed at studying the process of professional and pedagogical preparation of pre-service foreign language teachers for the implementation of the 4C's model of education in secondary school. The aim of the article is to present the results of the study of trends, directions and pedagogical conditions of effective organisation of the process of preparing students of the educational program 6B01730– "Foreign Language: two foreign languages" for the implementation of the 4C's concept of education at school, to offer scientifically-based recommendations on the subject of professionally-oriented formation of flexible skills in future teachers. In order to study the problem, a control survey and questionnaire survey of students on the level of their knowledge and perceptions in the aspect of 4C's concept, its implementation in school practice was conducted with the participation of 169 students of the educational program 6B01730 –"Foreign Language: two foreign languages". The method of expert evaluation revealed the formation of pre-serviceteachers' methodological and technological skills of teaching and training schoolchildren in 4C's skills. Educational program, educational-methodical complexes of disciplines of the training direction "Foreign language teacher", methodical recommendations on the organisation of the educational process in order to form 4C's competences were used as research materials. In the course of analysing the university practice, information was obtained about the current trends, directions and gaps in the preparation of future foreign language teachers for teaching and training students in 4C's skills. The key directions of pedagogical efforts and pedagogical conditions were identified, the integrated use of which increases the possibilities of effective design and organisation of the educational process in the university aimed at the formation of professionally- oriented 4C's competences in students of educational program of pedagogical direction. The obtained results contribute to the development of modern models of training teachers of a new formation in higher education institutions of different countries. Also, the described approaches and models will allow university teachers, teachers' retraining and professional development courses to design and implement innovative content and methods of developing 4C's competences in students.

Key words: 4 C's educational model, future teacher training, implementation of the 4C's education model, pre-service foreign language teacher, 4C's competences flexible skills, professional and pedagogical competences, secondary school.

Ф.М. Салыбекова*, Н.Ш. Алметов, Г.К. Карбозова,
А.С. Швайковский, А.А. Суюбердиева
М. Әуезов атындағы Оңтүстік Қазақстан университеті, Шымкент қ., Қазақстан
*e-mail:sfm_82@mail.ru

XXI ғасырдағы білім берудің 4К моделі арқылы болашақ шет тілі мұғалімдерінің кәсіби құзыреттіліктерін арттыру

Бұл зерттеу жалпы орта білім беретін мектепте білім берудің 4К моделін жүзеге асыруға болашақ шет тілі мұғалімдерін кәсіби-педагогикалық даярлау процесін зерделеуге бағытталған. Мақаланың мақсаты- 6B01730 –"Шетел тілі: екі шетел тілі" білім беру бағдарламасының студенттерін мектепте білім берудің 4К концептісін іске асыруға дайындау процесін тиімді ұйымдастырудың тенденцияларын, бағыттары мен педагогикалық шарттарын зерттеу нәтижелерін ұсыну, болашақ мұғалімдерде икемді дағдыларды кәсіби бағдарланған қалыптастыру тақырыбы бойынша ғылыми негізделген ұсыныстарды ұсыну. Мәселені зерделеу үшін 6B01730 –"Шетел тілі: екі шетел тілі" білім беру бағдарламасының 169 студентінің қатысуымен 4К тұжырымдамасы, оны мектеп практикасында жүзеге асыру аспектісінде олардың білімі мен ұсыныстарының деңгейі

тұрғысынан студенттерге бақылау сауалнамасы және сауалнама жүргізілді. Сараптамалық бағалау әдісімен болашақ мұғалімдерде оқушыларды оқыту мен оқытудың әдістемелік-технология-лық 4К дағдыларының қалыптасуы анықталды. Зерттеу материалдары ретінде білім беру бағдарламалары, "Шет тілі мұғалімі" даярлау бағытындағы пәндердің оқу-әдістемелік кешендері, 4К құзыреттілікті қалыптастыру мақсатында оқу процесін ұйымдастыру бойынша әдістемелік ұсынымдар пайдаланылды. ЖОО практикасын талдау барысында жалпы білім беретін мектептердің оқушыларын оқыту мен болашақ шет тілі мұғалімдерінің 4К дағдысын қалыптастыруға даярлаудың қазіргі тенденциялары, бағыттары мен проблемалары туралы ақпарат алынды. Педагогикалық күш-жігердің негізгі бағыттары мен педагогикалық жағдайлар анықталды, оларды кешенді пайдалану педагогикалық бағыттағы білім беру бағдарламалары студенттерінің кәсіби-бағдарланған 4К құзыреттіліктерін қалыптастыруға бағытталған ЖОО-да оқу процесін тиімді жобалау және ұйымдастыру мүмкіндіктерін арттырады. Алынған нәтижелер әртүрлі елдердің жоғары оқу орындарында жаңа формациядағы педагогтарды даярлаудың заманауи үлгілерін дамытуға ықпал етеді. Сондай-ақ, сипатталған тәсілдер мен модельдер жоғары оқу орындарының, мұғалімдерді қайта даярлау және біліктілігін арттыру курстарының оқытушыларына, білім алушылардың 4К құзыреттілігін дамытудың инновациялық мазмұны мен әдістемелерін жобалауға және енгізуге мүмкіндік береді.

Түйін сөздер: 4К білім беру моделі, болашақ мұғалімді даярлау, 4К білім беру моделін іске асыру, болашақ шет тілі мұғалімі, 4К құзыреттіліктер, икемді дағдылар, кәсіптік-педагогикалық құзыреттіліктер, жалпы білім беретін мектеп.

Ф.М. Салыбекова*, Н.Ш. Алметов, Г.К. Карбозова,
А.С. Швайковский, А.А. Суюбердиева
Южно-Казахстанский университет им. М. Ауэзова, г. Шымкент, Казахстан
*e-mail: sfm_82@mail.ru

Повышение профессиональной компетенций будущих учителей иностранного языка средствами 4К модели образования в XXI веке

Данное исследование направлено на изучение процесса профессионально-педагогической подготовки будущих учителей иностранного языка к реализации 4К модели образования в средней общеобразовательной школе. Цель статьи – представить результаты исследования тенденций, направлений и педагогических условий эффективной организации процесса подготовки студентов образовательной программы 6В01730 – «Иностранный язык: два иностранных языка» к реализации 4К концепции образования в школе, предложить научно-обоснованные рекомендации по тематике профессионально-ориентированного формирования гибких навыков у будущих учителей. В эмпирической части исследования были проведены опрос студентов на предмет уровня их знаний и представлений в аспекте 4К концепции, ее реализации в школьной практике. В эмпирической части исследования приняло участие 169 студентов образовательной программы 6В01730 – «Иностранный язык: два иностранных языка». Методом экспертной оценки выявлена сформированность у будущих учителей методико-технологических умений преподавания и обучения школьников 4К навыкам. В качестве материалов исследования были использованы образовательные программы, учебно-методические комплексы дисциплин направления подготовки «Учитель иностранного языка», методические рекомендации по организации учебного процесса в целях формирования 4К компетенций. В ходе анализа вузовской практики была получена информация о современных тенденциях, направлениях и пробелах подготовки будущих учителей иностранного языка к преподаванию и обучению учащихся общеобразовательных школ 4К навыкам. Выявлены ключевые направления и педагогические условия, комплексное использование которых повышает возможности эффективного проектирования и организации учебного процесса в вузе, направленного на формирование профессионально-ориентированных 4К компетенций у студентов образовательных программ педагогического направления. Полученные результаты вносят вклад в развитие современных моделей подготовки педагогов новой формации в высших учебных заведениях разных стран. Также, описанные подходы и модели позволят преподавателям вузов, курсов переподготовки и повышения квалификации учителей проектировать и внедрять инновационное содержание и методики развития 4К компетенций у обучающихся.

Ключевые слова: 4К модель образования, подготовка будущего учителя, реализация 4К модели образования, будущий учитель иностранного языка, 4К компетенции, гибкие навыки, профессионально-педагогические компетенции, общеобразовательная школа.

Introduction

In modern conditions, one of the core directions of modernisation of the national education systems is orientation towards the trends of globalisation and digitalisation, preparation of graduates for professional activity in conditions of constant changes. Both scientists and educational practitioners share the same opinion about the relevance of developing flexible skills in graduates. Therefore, national education development programmes, conceptual frameworks and education standards highlight universal skills, in particular 4C's competences f a graduate. In Kazakhstan, important document have been adopted in recent years. In the Concept of Development of Higher Education and Science in the Republic of Kazakhstan for 2023-2029, advanced staffing is highlighted as one of the leading areas of modernization of higher education in the country at the present stage. It is noted that "Updating the content of educational programs and improving the model of a university graduate will be carried out taking into account key competencies and new challenges of the labor market". In the context of a rapidly changing world, such competencies include 4C's competencies, the formation of which is considered a priority in the continuous education system of the advanced countries of the world (Concepts…, 2023).

The transformation of school education in Kazakhstan implies the introduction of innovations in the educational process, contributing to activation of the processes of formation of global skills in schoolchildren. The envisaged organisational and pedagogical measures within the framework of the implementation of educational programmes, which contributed to strengthening of the subject position of the student, his/her active learning and research activity, declaration of the principles of development of critical thinking, creativity, introduction of the communicative methodology of language teaching, implementation of forms of organisation of learning and cognitive activities activating cooperation between teachers and students, eventually led to certain positive results in formation of 4C's competencies (Anni, 2015).

In 2021-2022 academic year the educational branch "Global competences", which includes educational subjects "Fundamentals of critical thinking", "Media competence" has been introduced in the curricula of general education schools of Kazakhstan (Kim, 2021).

The rapidly changing world makes significant adjustments to the content and nature of pedagogical activity to prepare pre-service teachers for professional life in conditions of continuous social and educational innovations.

The advanced training of pre-service teachers is possible if higher professional-pedagogical education responds timely and flexibly to changes in modern paradigms of school education. When training future teachers, it should be taken into account that global competences are one of the targets of school education reform in the third decade of this century. The traditional focus on the formation of subject competences is actively giving way to meta-subject competences, flexible skills. Thus, a graduate of a pedagogical university should demonstrate a sufficient level of critical thinking, communicative, creative and teamwork skills, and possess modern pedagogical tools for teaching these skills to schoolchildren.

The "4C's concept" in education takes its origins in the USA. In 2002, educational research centres and the US Ministry of Education and Science, a number of leading companies and organisations together with experts created the partnership "competences of the XXI century". The main reason was that the reform of education in the USA failed (Harshbarger, 2016).

The totality of such skills as critical thinking, creativity, information and communication strategies, ability to work in a team is called the 4K model (Kids…, 2017).

The research of competences of the future was done by Joines, S., Rossignoli, S. and Feniava Amonoo-Kuofi, E. (2019), Plucker, J., Kaufman, J., & Beghetto, R. (2016), Hermann, E. (2015), Lin, K.S. (2014), Lipple, S. (2013) et al.

"The 4C's are super skills because they provide a foundation of skills that, when combined with traditional skills in core subjects, help students develop and demonstrate deep understanding and greater efficiency in career and life skills, as well as in information, media and technology skills, all of which constitute a new learning paradigm" (Lin, 2014).

In Kazakhstan, 21st Century Skills introduced the 4C's of critical thinking and problem solving, communication, collaboration and creativity plus innovation as super skills in the 21st century because they are fundamental to success in life beyond educational institutions. Upon graduation, students enter a highly competitive world of commerce, business and life that requires more skills than those exhibited by graduates of the industrial age. As the 21st century industry points out, graduates with skills that enable them to become immediately productive in the workforce are required.

School practising teachers are taking refresher courses on the renewed content of education. But additional measures are required to give a purposeful and systematic character to the processes of preparing teachers for implementation of the 4C's model.

It should be noted that introduction of the updated content of education, which is an effective mechanism for formation of 4C's competences, was significantly ahead of the modernisation of the content of university training of future teachers. Pedagogical universities began to respond to fundamental changes in school education only after it became clear that the content and process of theoretical and practical training of future teachers lagged behind the urgent needs of school practice. In recent years, a number of changes has been introduced in the educational programmes of pedagogical universities aimed at preparing students to work under the conditions of updated programmes in school. The programmes of basic courses of pedagogy, psychology and methods of teaching school subjects have been changed and supplemented, new elective courses have been introduced, the content of pedagogical practice and independent work of students has been revised (Educational program, 2023). These educational innovations, undoubtedly, serve the tasks of forming the readiness of future teachers to form 4C's competences in school students.

Unfortunately, the problem of preparing future teachers to develop 4C's competences in students has remained unsolved in its main aspects:

- there is a lack of purposefulness and systematicness in preparing future teachers to form 4C's competences in schoolchildren in real pedagogical practice;

- pedagogical measures for development of 4C's competences in students are insufficiently provided;

- theoretical training of students in basic psycho-pedagogical courses does not yet provide a sufficient level of methodological and practice-oriented knowledge and skills, development of pedagogical thinking in the aspect of 4C's competences and their formation in conditions of school education;

- the system of independent learning and cognitive activities of students developing critical thinking, creativity, communicative and co-operative skills is not provided;

- the content and organisation of pedagogical practice of students of 1-4 courses are not focused on the development of skills and abilities to implement the 4C's concept in real school practice;

- students-future teachers are not involved in various types and forms of educational, research and extracurricular activities that develop their competences and abilities to promote the 4Cs model in didactic and educational contexts;

- weak methodological support for the efforts of teachers of educational programmes of pedagogical directions to develop 4C's competences and to form their readiness to develop flexible skills in students (Lisa, 2010; Kivunja, 2015; Herrmann, 2015; Halverson, 2018; Fandiño, 2013; Harmer, 2007; Pardede, 2011-2019; Pinskaya, 2019; Kulishenko, 2020; Polushkin, 2018).

We proceed from the fact that it is necessary to study and analyse the didactic potential of educational programs of pedagogical direction in implementation of the 4C's concept of education, to model approaches and technologies of teaching students to form flexible skills in real pedagogical practice. Such approaches and technologies should be united in a holistic system, and include all stages of training a future teacher.

The above-mentioned applies to the training of future teachers of foreign language, because in teaching and learning of a foreign language speech there are the widest opportunities for development of 4C's skills. And for this purpose a future teacher should be prepared both in methodological, theoretical and methodological-technological terms.

Materials and methods

As a theoretical basis we used modern ideas and concepts of 4C's, psychological and pedagogical theories and concepts of pedagogical education, competence approach to education, research of the process of teaching and learning 4C's skills by schoolchildren, as well as training of future teachers to implement 4C's models in school.

We proceeded from the concept, according to which the teachers' training for the formation and development of 4C's should be aimed at understanding the philosophical, psychological and pedagogical foundations of the technology of forming 4C's, understanding the basics of choice psychology, mastering the position of a facilitator of children's learning and cognitive activities and the ability to design learning tasks of project and research nature (Tikhomirova, 2019).

The research was carried out on the basis of the educational program of pedagogical direction "Foreign Language Teacher" (bachelor's degree), educational-methodical complexes of psychological-pedagogical and special-methodical disciplines, methodical recommendations on organisation of the

educational process in school oriented on the purposes of development of 4C's competences, materials of advanced pedagogical experience of comprehensive schools in Kazakhstan on formation of flexible skills at schoolchildren, and also the data of experimental research.

The key methods of the research included:

- control survey of students' knowledge and perceptions of the 4C's concept, questionnaire survey on students' awareness of the importance and role of training 4C's skills;

- expert evaluation methods conducted in September-October, 2023, with participation of 169 students of 1-4 courses of the educational program "Foreign language: two foreign languages" of M.Auezov South Kazakhstan University;

- survey for university teachers on the trends and problems of professionally oriented formation of 4C's skills;

- qualitative research, collection method, the mixed method, questionnaire.

- pedagogical observations of students' professional readiness for the investigated aspect of professional-pedagogical activity.

A psychological and pedagogical diagnosis of the level of readiness of students-future teachers to the considered direction was carried out:

- definition of concepts and students' ideas about the 4C's concept and their realisation in the forthcoming pedagogical school practice;

- questionnaire survey to identify the level of students' awareness of the role and significance of teaching and learning 4C's skills in the school course of a foreign language;

- revealing the level of students' mastery of methods and technologies of training 4C's skills to schoolchildren;

- examination of students' methodological and technological developments to assess their readiness for teaching and learning based on the 4C's model;

- survey of university teachers on the general trends and gaps in preparation of future foreign language teachers for implementation of the 4C's model of teaching in school;

- pedagogical observation of students' professional readiness to implement the 4C's model and its correlation with experts' assessments.

Literature review

The analysis of domestic and foreign psychological and pedagogical literature shows that in recent years scientists have shown increasing interest in the 4C's model of education. They consider the problem of forming 4C's competences in the context of digitalization and globalization processes, correctly noting that these trends actualise the task of developing flexible skills in graduates. For example, R. Harshbarger's study analyses 4C's skills of students as their ability to meet the challenges of the 21st century. The author draws attention to the fact that in school programmes it is necessary to allocate a training module focused on development of 4C's skills (communication, cooperation, critical thinking and creativity), i.e. the content of education should include a component on development of flexible skills in students .

Some researchers note that future teachers face more problems with implementation of the 4C's model of education than practicing teachers. Therefore, they are convinced that future teachers should know the technologies and methods of implementing 4C's models of education in real pedagogical practice. The idea of incorporating 4C's competences into the teaching and learning process is substantiated in the works of Lisa M. Vail (2010), Kivunja, S. (2015), Herrmann, E. (2015) et al.

Significant from the point of view of our study are the academic writings concerning the development of 4K skills in English language teaching. Thus, in the studies of Halverson, A. (2018), Fandiño, Y. (2013), Harmer, J. (2007), Pardede, P. (2011) different approaches and methods of teaching 4C's skills in English language teaching and learning are examined.

Analysis of literature shows that creation and acceptance of the 4C's concept by the pedagogical community gave a noticeable impetus to the theory and practice of teacher training.

Thus, the work of P.A.Pinskaya and A.M.Mikhailova (2019) considers methodological aspects of designing teaching tasks that develop 4C's competences in schoolchildren, as well as assessment tools that allow teachers to evaluate the level of formation of these competences. The authors also present methods for conducting joint pedagogical research, and mastering new forms of work for development of 4C's skills [20].

I.V.Kulishenko et al. (2020) investigated the technology of formation of 4C's competences in training of specialists in physical education and sports. The authors proceed from the position that for the development of these competences in training of physical education personnel it is necessary to build the educational process in such a way that the content of any discipline gives students the oppor-

tunity to independently acquire knowledge, work in a team, and manage their learning trajectory. According to the authors, to possess this competence the student should have the following: competence, which is considered as a set of general, special, methodological knowledge; abilities to think creatively, find extraordinary solutions that provide active participation of students.

According to D.Polushkin (2018), it is possible to effectively form and develop 4C's competences by using flexible "Agile" project methodologies, in particular, such as eduScrum. Imagine children who do not need to be pushed, who themselves truly feel responsible for completing their work. No one tells the kids what to do or how to do it, only requirements for the expected outcome are set, and the kids themselves want to achieve it. There is no need to impose homework on learners, they generate it for themselves – in a way that they feel is appropriate for the task at hand. When you are in an eduScrum class, you feel the energy and the overall positive attitude.

The article by O.V.Tikhomirova (2019) considers the problem of training general education teachers to form and develop the cognitive component of future competences defined as "4C's": critical thinking, creativity, communication, collabaration. The author describes the results of the study of professional competence of teachers, priority areas of training, solutions to overcome professional deficits. According to the author, the content of teacher training is immersion in philosophical and psychological-pedagogical foundations of the 4C's technology, mastering the position of a facilitator of students' learning and cognitive activities and the ability to design project and research-based learning tasks.

The conclusions about the ways of forming 4C's competences in the process of professional education made by a group of authors under the leadership of N.A.Panov (2021) deserve attention. The authors consider the peculiarities of the learning process and the possibilities of eduScrum for formation of 4C's competences, the use of case technology for formation of 4C's competences in students and assessment of their formation .

L.A.Gladun's (2011) studies the problem of forming methodological competences in future special educators. The following conclusions of the author concerning formation of methodological competences of future teachers are interesting from the point of view of forming 4C's competences: formation of methodological competences of future spe-

cial educators, in conditions of competence-based approach, will be effective when the deductive approach to students' mastering of methodological competences is applied. According to the author, implementation of the deductive approach in formation of methodological competences should be carried out through development of a separate academic subject, preceding the study of private special subject methods, in teaching and methodological activities of students, organised on the basis of system orientation in the subject of teaching, namely: the principle of construction of the subject and the logic of its presentation is considered from the position of methodology as a system; the systematic formation of methodological competences is aimed at mastering the general method of teaching and learning; the methodological competences are developed in a systematic way .

The study by O.V. Razumova (2021) considers the peculiarities of forming 4C's competence in future teachers of mathematics .

In studies on the problems of foreign language teacher training, the issue of readiness of students of pedagogical specialities to form 4C's skills in schoolchildren is more and more often touched upon.

It is important to note the publications that note the importance and necessity of teaching and learning 4C's skills (Andy Halvorsen, Joynes, C., Rossignoli, S., Fenyiwa Amonoo-Kuofi, E. (2019), Voogt and Roblin (2010, 2012), Scott (2015) et al.).

For example, Andy Halvorsen(2018) writes: for many language teachers around the world, today's classrooms may look and feel very different from the ones we remember from our own childhoods. At teacher training workshops and professional development events, you may have heard talk of 21st century skills and the new literacy. Many of us have realised that our students today need new sets of skills to prepare them to be successful participants in the globalised society. But for many busy teachers, these new skills and concepts may not be clear, or you may not know how to implement them in a real classroom .This view is shared by Joynes, C., Rossignoli, S., Fenyiwa Amonoo-Kuofi, E. (2019).

The concept of the 4C's encompasses critical thinking, communication, collaboration, and creativity. The Partnership for 21st Century Learning (P21), a US-based organization, has put forth the 'Framework for 21st Century Learning'. This framework emphasizes the importance of cultivating the 4C's (critical thinking, communication, collaboration, and creativity) as essential attributes in

the instruction of core subject areas. The 4C's model is founded on the premise that the challenges of the 21st century will necessitate a comprehensive range of skills, with a particular emphasis on an individual's aptitude in fundamental subject skills, social and cross-cultural competencies, linguistic proficiency, and comprehension of the economic and political dynamics that impact societies. Based on Scott's findings, the following section provides a description of each of the 4C's skills:
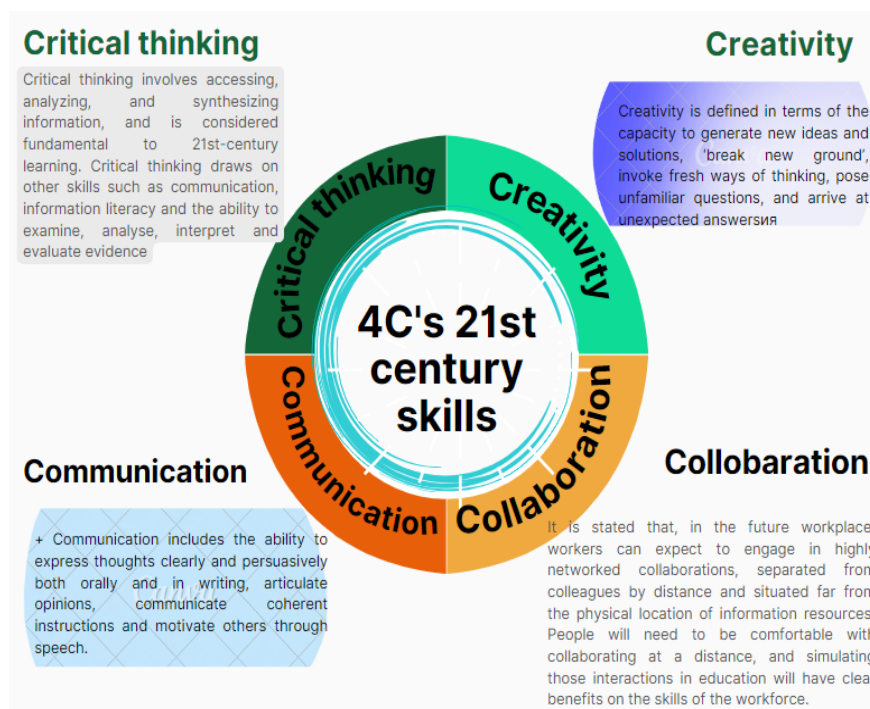

Figure 1 – "4C's as 21st century skills"

Recognition of critical thinking may be traced back to Socrates over 2,500 years ago, when he established the practice of questioning, thereafter known as the Socratic Method, as a means to enhance the quality of human reasoning abilities. The notion was reintroduced by Descartes during the 17th century and then expanded upon and influenced by Dewey, resulting in its integration as a significant element within Western educational frameworks since the mid-20th century. Critical thinking, first originating from the western culture, is now widely recognized as a crucial talent in 21st century education globally. It has been suggested as a pedagogical option to enhance language acquisition. The importance of fostering critical thinking skills in English as a Foreign Language (EFL) instruction becomes more evident when examining the findings of recent research that suggest a majority of EFL students.

Development of critical thinking skills is crucial for EFL students as it enhances their capacity to engage in a passionate and responsible manner.

This involves the ability to question, analyze, criticize, reflect, and synthesize their thoughts, establish appropriate principles and standards for evaluating their thinking, and willingly evaluate, accept, or reject novel ideas, concepts, and perspectives.

In the forthcoming professional environment, employees may anticipate participating in extensively interconnected partnerships, which will be geographically distant from their colleagues. Individuals must possess the necessary aptitude to engage in remote collaboration, and replicating such interactions in educational settings will provide evident advantages for the workforce's skill set.

While creativity and creative thinking are often used interchangeably, it is important to recognize that they are distinct concepts. Creativity encompasses creation of novel ideas, thoughts, and items via various processes and interactions. On the other hand, creative thinking pertains to the cognitive abilities that empower individuals to develop unique and innovative ideas, thoughts, and objects. Creative

thinking is considered a fundamental component in the development of creativity, as it is shaped by the combination of creative thinking abilities, drive, and knowledge.

Meanwhile, in these works, the problems of preparing a future teacher to implement the 4C's model of education are considered in a general context, without taking into account the specifics and directions of teacher education. Most works emphasise formation of individual components of 4C's competences of a graduate, and do not take into account the importance and necessity of formation and development of these skills in interrelation.

In Kazakhstan, the problems of formation of 4C's competences and preparation of a future teacher for their formation in students is a new problem both in the theory and practice of pedagogical education. The real interest to this problem has arisen and increased in connection with the transition of general education school to the updated content of education.

Thus, G.M. Myrzataeva, N.Sh. Almetov, G.K. Karbozova (2021) investigated the issues of training a future foreign language teacher to form critical thinking in schoolchildren. The authors conducted an experimental study of the level of critical thinking of future teachers and their professional readiness to form critical thinking. The study was conducted with third-year bachelor's degree students of the educational programme "Foreign language: two foreign languages".

Statistical processing of the Watson-Glaser critical thinking (CT) test shows that most students have not formed critical thinking as an important characteristic of professional competence at a sufficient level. The authors also studied the basic theoretical knowledge of future foreign language teachers' knowledge of the concept of critical thinking, their methods, and technologies of critical thinking development. It is concluded that future foreign language teachers are well aware of the necessity of critical thinking development for successful learning in higher education and in the forthcoming practical activity. However, its formation both in general and in professional-pedagogical and methodological aspects is not purposeful and systematic.

The article by S.M.Narenova and N.Djumadild (2017) investigates the process of formation of professional competences of future chemistry teachers in the conditions of multilingual education. In the structure of the model – the cycle of competences providing the process of development of tactics and strategy of formation of competence of a professional-specialist has the following content:

- competences on actualisation of subjective professional position and readiness for professional activity;

- competences on self-realisation, self-management, self-organisation of professional activity;

- competencies for evaluation, consideration of the results of self-actualisation of the subjective position in professional activity and subjective interaction.

Unfortunately, the authors do not consider the issues of forming 4C's competences in future foreign language teachers in a system (critical thinking, communicative skills, creativity or teamwork skills separately), which excludes the possibility of a systematic approach to teaching and learning.

Thus, the issues of training a future foreign language teacher to form 4C's competences in schoolchildren remain insufficiently researched both in Kazakhstan and in the CIS space. The task to systematically consider the process of formation of professional competences of a future foreign language teacher in the aspect of teaching and learning 4C's competences among schoolchildren has not been set.

Results and discussion

The pedagogical experiment was conducted on the basis of the Philological Faculty of M. Auezov South Kazakhstan University, with students of 1-4 courses of the educational programme "Foreign language: two foreign languages". 169 students and 30 teachers participated in different stages of the experiment.

Determination of the students' concepts and ideas about the 4C's concept and awareness of their realisation in the forthcoming educational real school practice was carried out by the method of control questioning:

The first block – students' knowledge and understanding of the 4C's concept and its role in teaching a foreign language in school;

The second block – availability of students' ideas about approaches, forms and methods of teaching and training schoolchildren in 4C's skills.

The questionnaire questions were designed so that their evaluation could demonstrate students' knowledge of the main characteristics of 4C's competences according to the hierarchy of Bloom's Taxonomy (Table 1).

Table 1 – Knowledge and perceptions of students – pre-service foreign language teachers in the aspect of 4C's competences and their realisation in teaching and learning (in %)

4C's competences	Levels of proficiency according to Bloom's taxonomy					
	Knowledge	Understanding	Application	Analysis	Synthesis	Evaluation
Critical thinking	13	42	23	9	8	5
Creativity	12	36	27	13	9	3
Communication	7	33	33	11	10	6
Cooperation	11	28	26	16	13	6
Averages	10,7	34,7	27,3	12,3	10	5

The analysis of the data of the control survey of students presented in Table 1 shows that the predominant majority of respondents have knowledge and ideas about the 4K skills, their structure, approaches and methods of formation at the level of knowledge (10.7%), understanding (34.7%), or partially applied (27.3%). The higher the level according to Bloom's taxonomy, the lower the students' performance (respectively at the level of analysis – 12.3%, synthesis – 10%, evaluation – 5%), which shows the weak level of their readiness to teach and train foreign language students focused on the goals of forming 4C's skills.

The level of students' awareness of the role and significance of teaching and learning 4K skills in the school foreign language course was determined by the questionnaire method.

To the question "Name the factors and conditions that contributed to the actualisation of the task of forming 4C's skills in 21st century students", only 25% of students noted 4-5 factors and conditions (the fourth industrial revolution, globalisation, digitalisation, integration into the world educational space, constant changes), 32% of students noted only one or two factors (globalization and digitalization), 43% of respondents answered only one factor or noted "I find it difficult to answer".

When asked "What are the benefits of flexible skills for school leavers?" – 5% of students indicated 7-8 statements, 29% of students listed 5-6 statements, when 41% marked only two or three, 25% of students only one or two or did not answer the question at all.

Answering the question "What opportunities do English lessons open up for the formation of 4C's competences among students?" – 42% of students noted that English lessons develop primarily communicative skills, 39% wrote that English lessons can develop critical thinking when students work with different content. 26% of students mention the possibility of developing cooperation skills when a group form of students' learning and cognitive activities is organised. Only 11% of students pointed out problem and creative tasks in English lessons, which contribute to the development of children's creative skills.

Identification of the basic level of students' mastery of methods and technologies of teaching and training 4C's skills was carried out with the involvement of experts from among experienced foreign language teachers of schools in Shymkent city and teachers of the department of "Modern Languages and Translation Studies". The experts conducted an oral survey on the knowledge and presentation of forms and methods of teaching and training 4C's skills in schoolchildren. Then, the students were asked to carry out individual assignments on the development of methods of English lessons and tasks for students, which stipulate the goals of teaching and learning 4C's skills. The materials submitted by the students were checked for anti-plagiarism using the Dupli Checker programme.

Experts received "expert sheets" developed in a special form, in which the criteria for evaluating students and quantitative expressions of their level of formation were indicated in the form of a table. The evaluation of criteria was carried out according to the 100-point system.

The data of expert assessment of the basic level of students' mastery of methods and technologies of teaching and training 4C's skills in schoolchildren are shown in Table 2.

Table 2 – Results of expert assessment of students' mastery of methods and technologies of teaching and training students in 4C's skills

Evaluation parameters	Evaluative indicators			
	High (85-100 points)	Sufficient (70-84 points)	Medium (50-69 points)	Low (less than 50 points)
Knowledge of critical thinking teaching and learning methods	3,2	20,3	41,4	35,1
Knowledge of creativity development techniques	5,2	17,7	39,3	37,8
Knowledge of methods for developing communication skills	9,4	19,2	36,8	34,6
Knowledge of methods for developing teamwork skills	11,2	23,8	40,2	24,8
Quality of methodological development of the lesson of 4C's skills development	9,5	16,8	36,6	37,1
Assignments for students to work independently to develop 4C's skills	7,9	18,8	39,4	33,9
Quality of methodological development of extracurricular activities	11,2	22,8	45,3	20,7
Problem solving situation concerning teaching and learning 4C's skills in foreign language lessons	2,9	9,8	44,7	42,6

The results of the expert assessment of students' proficiency in methods and technologies of teaching and learning 4C's skills to schoolchildren show that according to the criterion of knowledge of methods and technologies of teaching and learning 4C's skills in English lessons, future teachers demonstrate below average levels of readiness. The quality of methodological development of the lesson of 4C's skills development is evaluated by experts at a high level 9.5%, at a sufficient level 22.8%, when most of the students show average and low levels (respectively 45.3% and 20.7%) of readiness.

The tasks for students' independent work for the development of 4C's skills were performed at a high level by only 7.9% of students, and at an average level by 18.8%, when the percentages of respondents for this criterion of average and low levels are respectively 39.4% and 33.9%.

The quality of methodical development of extracurricular work according to experts' assessments, foreign language students performed at a high level 11,2%, at a sufficient level 22,8%, and at an average and low level respectively 45,3% and 20,7%.

The proposed tasks for solving problem situations related to teaching and learning 4C's skills in foreign language lessons at a high level performed only 11.2% of students. The same picture with the percentage of students who fulfilled the tasks at a sufficient level (22.8%). The main mass of students fulfilled the tasks of teaching and learning 4C's skills at the average (44.7%) and low (42.6%) level.

The levels of 4C's competencies in students of the control and experimental groups at the beginning of the experiment are presented in Table 3.

The results of the ascertaining experiment show a low and average level of formation of professional competencies among future teachers of a foreign language formed on the basis of the 4C's model of education. So, respectively, in the control and experimental groups, the low level of 4C's competencies was 31.4% and 25.6%, and the average level of professional competencies was demonstrated by 48.5% and 50.8% of students, respectively. At the same time, students with a sufficient level of professional competence make up 16.6% and 18.3%, i.e. a small part of the respondents. At the same time, only 3.5% of students in the control groups and 5.3% of students in the experimental groups demonstrated a high level of professional competence.

We have developed a null hypothesis, according to which, at the beginning of the experiment, the levels of formation of professional competencies of future foreign language teachers based on the 4C's model of education are at approximately the same level. When proving the null hypothesis, the statistics of the criterion $\chi2$ (chi-squared) It is determined by the formula (1): (Grabar M.I., Krasnianskaya K.A., 1977) [31].

Table 3 – Levels of development of 4C's competencies in students – future teachers of a foreign language at the beginning of the experiment

Samples	sample size	Estimated indicator			
		High (85-100 points)	Sufficient (70-84 points)	Average (50-69 points)	Low (less than 50 points)
The control group	$n_{1=88}$	$Q_{11=}$ 6 (3,5 %)	$Q_{12=}$28 (16,6%)	$Q_{13=}$82 (48,5%)	$Q_{14=}$53 (31,4%)
Experimental Group	$n_{2=81}$	$Q_{21=}$9 (5,3 %)	$Q_{22=}$31 (18,3%)	$Q_{23=}$86(50,8%)	$Q_{24=}$43(25,6 %)

The value of the statistic χ2 of the criterion is determined by the formula (1)

$$Tбайк = \frac{1}{n_1 \cdot n_2} \sum_{i=1}^{c} \frac{(n_1 O_{2\,i} - n_2 O_{1\,i})^2}{O_{1\,i} + O_{2\,i}} =$$
$$= \frac{1}{n_1 \cdot n_2} \left[\frac{n_1 O_{21} - n_2 O_{11}}{O_{11} + O_{21}} + \frac{n_1 O_{22} - n_2 O_{12}}{O_{12} + O_{22}} + \frac{n_1 O_{23} - n_2 O_{13}}{O_{13} + O_{23}} \right] \quad (1)$$

Where, T- is the criterion statistics, n1- is the number of students in the control group (sample size), n2- is the number of students in the experimental group (sample size). Q1i – students of the appropriate level in the control group, Q2i – students of the appropriate level in the experimental group. Calculate the value of T_{observ}.(T-observation or T-test) using the formula (1):

$$T - test = \frac{1}{88 \times 81} \sum_{i=1}^{4} \left[\frac{(88 \times 9 - 81 \times 6)x^2}{6 + 9} + \frac{(88 \times 31 - 88 \times 28)x^2}{28 + 31} \right.$$
$$\left. + \frac{(88 \times 86 - 81 \times 82)x^2}{82 + 86} + \frac{(81 + 53 - 88 \times 43)x^2}{53 + 43} \right] = 2,47$$

According to the statistical criterion table Grabar M.I., Krasnianskaya K.A. Application of mathematical statistics in pedagogical research. Nonparametric methods. At the value level α =0.05 and the degree of freedom v =C-1=4-1=3, the critical value of T-test = 7,815. This means that the value of T-test= 2.47 determined by us satisfies the inequality of T-test, i.e. 2.47‹7,815, which is the basis for proving the null hypothesis.

At the formative stage of experimental work in experimental groups, we used a set of pedagogical measures aimed at the formation and development of students' 4C's competencies. In the control groups, the training was conducted using traditional methods.

Quantitative data on the results of the formative experiment were obtained using the same methods and diagnostic tools as in the ascertaining stage of the experiment, which are presented in Table 5.

Table 4 – Dynamics of the formation of 4C's competencies of students at the end of the experiment

Samples	sample size	Estimated indicator			
		High (85-100 points)	Sufficient (70-84 points)	Average (50-69 points)	Low (less than 50 points)
The control group	$n_{1=88}$	$Q_{11=}$ 11 (6,6 %)	$Q_{12=}$31 (18,6%)	$Q_{13=}$68 (40,5%)	$Q_{14=}$59 (34,3%)
Experimental Group	$n_{2=81}$	$Q_{21=}$58 (34,3%)	$Q_{22=}$80 (47,4%)	$Q_{23=}$26(15,4%)	$Q_{24=}$5 (2,9%)

At the end of the experiment, there were no significant changes in the levels of formation of students' professional competencies in the control groups based on the 4C's model of education, when significant dynamics of professional competence development was observed in the experimental groups. Thus, the data in table 4 show that in the experimental groups there is a decrease in the percentage of students with low and medium levels of professional competencies (2.9% and 15.4%, respectively), as well as a noticeable increase in the number of students with sufficient and high levels of professional competencies (47.4% and 34.3%, respectively). The dynamics of students' professional competencies based on 4C's competencies is verified by the statistical value of the criterion $\chi2$ (chi-squared).Calculate the value of T-test using the formula (1):

$$T-test = \frac{1}{88 \times 81} \sum_{i=1}^{4} \left[\frac{(88 \times 58 - 81 \times 11)x^2}{11 + 58} + \frac{(88 \times 80 - 81 \times 31)x^2}{31 + 80} + \frac{(88 \times 26 - 81 \times 68)x^2}{68 + 26} + \frac{(88 \times 5 - 81 \times 59)x^2}{59 + 5} \right] = 56,74$$

According to the table of critical values of statistics a=0.05, the critical value of Tcrit=7,815, while C is the number of categories. Table= 56.74. Comparing these values (Tcrit = T-test= we get the inequality 56.74" 7,815, that is, T-test›Tcrit). It means that it is statistically proven that in experimental groups there is an increase in the level of formation of 4C's competencies among students.

Thus, students' mastery of methods and technologies of teaching and training students in 4C's skills as a result of existing approaches and conditions to formation of flexible skills cannot guarantee the desired level of students' professional readiness for this direction.

The survey of university teachers about general trends and gaps in the preparation of future foreign language teachers to implement the 4C's model of teaching in school allowed us to identify the difficulties they face in implementing the 4C's model. In particular, 29% of teachers note that the innovative nature of the implementation of the 4C's model of teaching at the university does not correspond to the traditional approaches to assessment of course results. 47% of the respondents note the one-sided approach to the formation of 4C's competences in the university practice, without ensuring proper interrelation of the structural elements of this teaching model. 71% of teachers noted that they emphasise more on the development of communicative skills. 35% of respondents believe that they give tasks for the development of creativity based on the level of students' learning and cognitive activity and often for the period of pedagogical practice. Only 18% of teachers expressed the opinion about the systematic use of tasks for the development of critical thinking, students mainly perform tasks for knowledge, understanding and application according to Bloom's taxonomy.

The pedagogical observation we conducted shows, in general, insignificant differences in the assessments of experts and the results of analysing the data of the research observation of 4C's competences of future teachers of English.

Conclusion

The study and analysis of the pedagogical experience of training future foreign language teachers to implement the 4C's model in school has shown that there are many factors and conditions that hinder the effective organisation of this process.

The predominant part of students showed average and low levels of 4C's skills.

The insufficiently high level of 4C's skills in the majority of students is explained by the fact that during the period of their schooling, formation of flexible skills in graduates has not yet become a priority direction of teaching and learning activity.

4C's competences, or rather some of its components became the subject of close attention only after the introduction in Kazakhstani schools, changes in the format of admission to higher education (Unified National Testing), which also requires critical thinking skills. Besides, the current university practice of training future foreign language teachers, both in the content and methodological-technological con-

text, is insufficiently oriented to the goals of 4C's competences formation, which are declared in the educational programmes and partially reflected in the teaching-methodological complexes.

Meanwhile, the existing university practice of teacher training does not adequately provide continuity in formation and development of critical thinking skills, creativity, communication skills and teamwork skills.

The level of theoretical, methodological and technological knowledge and skills of students, which does not sufficiently ensure their readiness to fully solve the problems of teaching and training schoolchildren 4C's skills, has been revealed. Thus, students – future teachers of a foreign language poorly possess fundamental knowledge in the aspect of 4C's concept and its implementation in pedagogical practice, find it difficult to develop teaching and methodological materials for organization of the learning process. The predominant part of the interviewed students could not solve the control tasks for solving problem pedagogical situations related to the development of 4C's skills in schoolchildren at English lessons.

Two important pedagogical tasks arise here:

1) To reorganize the content of professional-pedagogical education in higher education institutions with orientation on the tasks of forming 4C's competences in future teachers;

2) To develop and implement educational technologies for formation of future teachers' competences in the aspect of teaching 4C's competences to schoolchildren.

The conducted research allowed us to determine a number of factors and pedagogical conditions, consideration of which allows to increase the effectiveness of professionally oriented formation of 4C's competences in students:

1) The 4C's concept should become a methodological basis for designing the content of professional-pedagogical education of future foreign language teachers in higher education institution. The 4C's skills should be the target reference point of teaching and learning of both general professional and basic training courses. Formation and development of flexible skills in students should be based on the system analysis and purposeful use of didactic possibilities of all components of the curriculum of the specialty "Foreign language: two foreign languages".

2) It is necessary to ensure the continuity of formation of 4C's competences. It is expedient to carry out psychological and pedagogical diagnostics of the level of 4C's skills of first-year students and plan systematic pedagogical measures to eliminate gaps in mastering flexible skills. Development of 4C's competences should be considered as a continuous process accompanying the whole period of student's study at university. It is advisable to include in the qualification tests tasks and situations to check the level of 4C's competences of a graduate and the ability to teach and train students in 4C's skills at lessons and in extracurricular work in a foreign language.

3) Formation of professionally pedagogically oriented 4C's competences in students should be designed as a purposeful, systematic pedagogical process covering the whole period of student's education. The main components of the future teacher's preparation for teaching and training students in 4C's skills are: motivational (formation of conscious attitude and high motivation of students to master 4C's skills); cognitive (formation of methodological and theoretical knowledge in the aspect of 4C's concept), operational (formation of skills and development of abilities to teach and train foreign language in real pedagogical practice).

4) It is important to strengthen the role of psycho-pedagogical disciplines in formation of professionally oriented 4C's competences in students;

5) Stages of formation and development of future teachers' readiness to teach and train students in 4C's skills at lessons and in extracurricular learning activities should include several interrelated stages:

Stage 1: actualisation of 4C's skills in students of 1-2 courses, formation of conscious attitude to their development.

Stage 2: mastering of fundamental knowledge and skills in the aspect of the 4C's model of education in the process of mastering basic psychological and pedagogical courses.

Stage 3: formation of methodological and technological competences of teaching and learning a foreign language with orientation on the 4C's goals in the process of pedagogical practice or dual training.

Stage 4: activation of students' teaching, research and creative activity in designing, developing and using models of lessons, extracurricular activities with students, individual assignments.

Stage 5: monitoring and qualification assessment of future foreign language teachers' professional readiness to implement the 4C's model.

The study of the continuity of the formation of 4C's skills in schoolchildren and university stu-

dents, both in the substantive and procedural context, seems to be a promising research task.

The authors' conclusions contribute to the development of ideas about reorienting the content and technologies of future foreign language teachers training to the tasks of forming 4C's competences, ensuring professional flexibility and mobility of graduates.

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Авторлар туралы мәлімет:

Салыбекова Фарида Муратовна (корреспондент автор) – «Педагогика және психология» білім беру бағдарламасының докторанты, М. Әуезов атындағы ОҚУ (Шымкент қ., Қазақстан, e-mail: sfm_82@mail.ru)

Алметов Негмаджан Шадиметович – п.г.к., профессор Заманауи педагогика және психология кафедрасы, М. Әуезов атындағы ОҚУ (Шымкент қ., Қазақстан, e-mail:n_almetov@mail.ru)

Карбозова Гульнара Кумисбековна – ф.г.к., доцент Заманауи тілдер және аударматану кафедрасы, М. Әуезов атындағы ОҚУ (Шымкент қ., Қазақстан, e-mail:140206kgk@mail.ru)

Швайковский Алексей Сергеевич – п.г.к., доцент Заманауи тілдер және аударматану кафедрасы, М. Әуезов атындағы ОҚУ (Шымкент қ., Қазақстан, e-mail: shvaikovskiy_a@mail.ru)

Суюбердиева Айман Абдразаковна – п.г.к., Гуманитарлық мамандықтар үшін шетел тілі кафедрасы, М. Әуезов атындағы ОҚУ (Шымкент қ., Қазақстан, e-mail:aiman.suyuberdieva@mail.ru)

Information about authors:

Farida Salybekova (corresponding author) – PhD student, M. Auezov South Kazakhstan University (Shymkent, Kazakhstan e-mail: sfm_82@mail.ru)

Negmatzhan Almetov – Candidate Pedagogical Sciences, associated professor of the department "Modern Pedagogy and Psychology", M. Auezov South Kazakhstan University (Shymkent, Kazakhstan, e-mail: n_almetov@mail.ru)

Gulnara Karbozova – Candidate Philological Sciences, associated professor of the Department of Modern Languages and Translation Studies, M. Auezov South Kazakhstan University (Shymkent, Kazakhstan, e-mail: 140206kgk@mail.ru)

Alexey Shvaikovskiy – Candidate of pedagogical sciences Associate professor of the Department of Modern Languages and Translation Studies, M. Auezov South Kazakhstan University (Shymkent, Kazakhstan, e-mail: shvaikovskiy_a@mail.ru)

Aiman Suyuberdieva – Candidate of Pedagogical Sciences, Senior Lecturer of the Department of Foreign Language for Humanitarian Speciality, M. Auezov South Kazakhstan university, Shymkent, Kazakhstan e-mail: suyuberdieva@mail.ru)

Сведения об авторах:

Салыбекова Фарида Муратовна (корреспондентный автор) – докторант образовательной программы «Педагогика и психология », ЮКУ имени М. Ауэзова (г.Шымкент, Казахстан. e-mail: sfm_82@mail.ru)

Алметов Негмаджан Шадиметович – к.п.н., профессор кафедры Современная педагогика и психология ЮКУ имени М. Ауэзова (г.Шымкент, Казахстан, e-mail: n_almetov@mail.ru)

Карбозова Гульнара Кумисбековна – к.ф.н., доцент кафедры Современные языки и переводоведения ЮКУ имени М. Ауэзова (г.Шымкент, Казахстан, e-mail:140206kgk@mail.ru)

Швайковский Алексей Сергеевич – к.п.н., доцент кафедры Современные языки и переводоведения ЮКУ имени М. Ауэзова (г.Шымкент, Казахстан, e-mail: shvaikovskiy_a@mail.ru)

Суюбердиева Айман Абдразаковна – к.п.н., Иностранный язык для гуманитарных специальностей кафедры Современные языки и переводоведения ЮКУ имени М. Ауэзова (г.Шымкент, Казахстан, e-mail: suyuberdieva@mail.ru)