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

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫНЫҢ
Абай атындағы Қазақ ұлттық педагогикалық университетінің

Х А Б А Р Ш Ы С Ы

ВЕСТНИК

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК РЕСПУБЛИКИ КАЗАХСТАН
Казахский национальный педагогический университет имени Абая

THE BULLETIN

THE NATIONAL ACADEMY OF SCIENCES OF THE REPUBLIC OF KAZAKHSTAN
Abai Kazakh National Pedagogical University

PUBLISHED SINCE 1944

3 (403)

MAY-JUNE 2023

ALMATY, NAS RK

«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 Ақпарат және коммуникациялар министрлігінің Ақпарат комитетінде 12.02.2018 ж. берілген
№ 16895-Ж мерзімдік басылым тіркеуіне қойылу туралы куәлік.
Тақырыптық бағыты: *әлеуметтік ғылымдар саласындағы зерттеулерге арналған.*
Мерзімділігі: жылына 6 рет.
Тиражы: 300 дана.
Редакцияның мекен-жайы: 050010, Алматы қ., Шевченко көш., 28, 219 бөл., тел.: 272-13-19
http://www.bulletin-science.kz/index.php/en/

Типографияның мекен-жайы: «Аруна» ЖК, Алматы қ., Мұратбаев көш., 75.

«Вестник Национальной академии наук Республики Казахстан».
ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print).
Собственник: РОО «Национальная академия наук Республики Казахстан» (г. Алматы). Свидетельство о постановке на учет периодического печатного издания в Комитете информации Министерства информации и коммуникаций и Республики Казахстан **№ 16895-Ж,** выданное 12.02.2018 г.
Тематическая направленность: *посвящен исследованиям в области социальных наук.*
Периодичность: 6 раз в год.
Тираж: 300 экземпляров.
Адрес редакции: 050010, г. Алматы, ул. Шевченко, 28, ком. 219, тел. 272-13-19
http://www.bulletin-science.kz/index.php/en/

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

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 periodical printed publication in the Committee of information of the Ministry of Information and Communications
of the Republic of Kazakhstan **No. 16895-Ж,** issued on 12.02.2018.
Thematic focus: *it is dedicated to research in the field of social sciences.*
Periodicity: 6 times a year.
Circulation: 300 copies.
Editorial address: 28, Shevchenko str., of. 220, Almaty, 050010, tel. 272-13-19
http://www.bulletin-science.kz/index.php/en/

Address of printing house: ST «Aruna», 75, Muratbayev str, Almaty.

BULLETIN OF NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN
ISSN 1991-3494
Volume 3. Number 403 (2023), 114-130
https://doi.org/10.32014/2023.2518-1467.497

UDC 37.013

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PEDAGOGICAL CONDITIONS OF TEACHING PRIMARY EDUCATION SUBJECTS THROUGH A META-SUBJECT APPROACH

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Abstract. The purpose of primary education is to create an educational space conducive to the harmonious formation and development of the personality of a student who has mastered the basics of a wide range of skills. The formation of a broad base of skills of the student is possible within the framework of meta-subject approach training of primary education disciplines. What is the teaching primary education subjects through a meta-subject approach? Teaching primary education subjects through a meta-subject approach is to ensure the success of teaching, the formation of a unified picture of the world in the student's perception, the formation of competencies in any field of cognition, the acquisition of knowledge, metacognition and skills. Our research is devoted to the current problem of the primary education process — pedagogical conditions for teaching academic disciplines in a meta-subject approach context.It is known that in the study of the course of functioning of

a particular pedagogical system, the aspect of the quality and effective effectiveness of this system is considered. At the same time, it is important to determine what pedagogical conditions are that ensure the effectiveness of the pedagogical system.In particular, pedagogical conditions mean the environment in which the pedagogical process takes place, the situation-the situation.In combination with the same environment, the pedagogical process arises, forms, develops, lives. This *determines* the relevance of our research. The *purpose* of our research article is to determine the pedagogical conditions for teaching subjects of primary education in a meta-subject approach context. In our study, we determined the pedagogical conditions for the implementation of meta-subject approach teaching of primary education subjects. These are: study and guidance of world experience (Russian Federation, Republic of China, South Korea), systematization of the principles of integration of subjects, preparation of future primary school teachers for meta-subject approach teaching of primary education subjects. Within the framework of the third pedagogical contract, a survey of primary school teachers of the municipal state institution "Secondary School № 76" of Almaty was conducted. The goal is to determine the presence or absence of understanding around the problem of learning from a meta-subject approach point of view. Based on the results of the survey, a special course program was developed. The training course was conducted for future primary school teachers in the 2021-2022 academic year. Thus, a scientific and methodological seminar was organized for the surveyed primary school teachers with a labor intensity of 30 hours. Having considered the pedagogical conditions for teaching subjects of primary education in a meta-subject approach context, we found out that a methodology is needed not only in primary school, but also for higher grades.

Keywords: pedagogical condition; meta-subject approach; primary education; teaching; subject

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БАСТАУЫШ БІЛІМ БЕРУ ПӘНДЕРІН МЕТАПӘНДІК ТҰРҒЫДА ОҚЫТУДЫҢ ПЕДАГОГИКАЛЫҚ ШАРТТАРЫ

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Аннотация. Бастауыш білім берудің мақсаты — кең ауқымды дағдылар негіздерін меңгерген білім алушы тұлғасының үйлесімді қалыптасуы мен дамуына қолайлы білім беру кеңістігін жасау болып табылады. Білім алушының кең ауқымды дағдылар негізін қалыптастыру бастауыш оқу пәндерін метапәндік тұрғыда оқыту аясында мүмкін болады. Бастауыш білім беру пәндерін метапәндік тұрғыдан оқыту дегеніміз не? Бастауыш білім беру пәндерін метапәндік тұрғыдан оқыту — оқытудың табыстылығын қамтамасыз ету, оқушының қабылдауында әлемнің біртұтас бейнесін қалыптастыру, танымның кез келген саласында құзыреттіліктерді қалыптастыру, білім, метабіліктерді және дағдыларды меңгерту болып табылады. Орындалған зерттеуіміз бастауыш білім беру үдерісінің өзекті мәселесі – оқу пәндерін метапәндік тұрғыдан оқытудың педагогикалық шарттарына арналып отыр. Белгілі бір педагогикалық жүйенің қызмет ету барысын зерттеуде осы жүйенің сапалылығы мен тиімді нәтижелелігі аспектісі қарастырылатыны белгілі. Сол ретте педагогикалық жүйенің тиімділігін қамтамасыз етіп тұрған қандай педагогикалық шарттар бар екенін анықтаудың орны ерекше болмақ. Нақты айтар болсақ, педагогикалық шарттар педагогикалық үдеріс өтіп жатқан ортаны, жағдай-жағдаятты білдіреді. Сол ортамен үйлескен жағдайда педагогикалық үдеріс пайда болады, қалыптасады, дамиды, өмір сүреді. Бұл біздің зерттеуіміздің *өзектілігін* айқындайды. Зерттеу мақаламыздың *мақсаты* – бастауыш білім беру пәндерін метапәндік тұрғыда оқытудың педагогикалық шарттарын айқындау. Зерттеуімізде бастауыш білім беру пәндерін метапәндік тұрғыда оқытуды жүзеге асырудың педагогикалық шарттарын айқындадық. Олар: әлемдік тәжірибені зерделеу және басшылыққа алу (Ресей Федерациясы, Қытай республикасы, Оңтүстік Корея), пәндерді кіріктірудің ұстанымдарын жүйеге түсіру, болашақ бастауыш сынып мұғалімдерін бастауыш білім беру пәндерін метапәндік тұрғыда оқытуға даярлау. Үшінші педагогикалық шарт аясында Алматы қаласы «№ 76 жалпы білім беретін мектеп» коммуналдық мемлекеттік мекемесінің бастауыш сынып мұғалімдерінен сауалнама алынды. Мақсат – метапәндік тұрғыдан оқыту мәселесі төңірегінде түсініктерінің бар немесе жоқтығын анықтау. Сауалнама нәтижесі негізінде арнайы курс бағдарламасы әзірленді. Оқу курсы 2021–2022 оқу жылында болашақ бастауыш сынып мұғалімдеріне жүргізілді. Сонымен сауалнама алынған бастауыш сынып мұғалімдеріне еңбек сыйымдылығы 30 сағ құрайтын

ғылыми-әдістемелік семинар ұйымдастырылды.Бастауыш білім беру пәндерін метапәндік тұрғыдан оқытудың педагогикалық шарттары туралы қарастыра келе, бастауыш мектепте ғана емес, жоғары сыныптарға да арналған әдістеме керектігін анықтадық.

Түйін сөздер: педагогикалық шарт, метапәндік тұрғыда оқыту, бастауыш білім беру, оқыту, пән

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ПЕДАГОГИЧЕСКИЕ УСЛОВИЯ МЕТАПРЕДМЕТНОГО ОБУЧЕНИЯ ПРЕДМЕТОВ НАЧАЛЬНОГО ОБРАЗОВАНИЯ

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Аннотация. Целью начального образования является создание образовательного пространства, благоприятного для гармоничного формирования и развития личности обучающегося, владеющего основами широкого спектра навыков. Формирование у обучающегося широкой базы навыков возможно в рамках обучение через метапредметный подход учебных предметов начального класса. Что такое обучение предметов начального образования через метапредметный подход? Метапредметное обучение предметов начального образования — это обеспечение успешности обучения, формирование целостной картины мира в восприятии учащегося, формирование компетенций

в любой области познания, приобретение знаний, метапредметов и навыков. Выполненное исследование посвящено актуальной проблеме процесса начального образования-педагогическим условиям обучение учебных дисциплин начального образования через метапредметный подход. Известно, что при изучении хода функционирования той или иной педагогической системы рассматривается аспект качества и эффективной результативности данной системы. При этом особое место отводится определению, какие существуют педагогические условия, обеспечивающие эффективность педагогической системы. В частности, педагогические условия представляют собой среду, условия, в которых происходит педагогический процесс. В сочетании с этой средой возникает, формируется, развивается, живет педагогический процесс. Это определяет *актуальность* нашего исследования. *Цель* данной статьи– определение педагогических условий обучение предметов начального образования через метапредметный подход. В исследовании определены педагогические условия осуществления обучение предметов начального образования через метапредметный подход. Это: изучение и руководство мировым опытом (Российская Федерация, Китайская республика, Южная Корея), систематизация принципов интеграции предметов, подготовка будущих учителей начальных классов к метапредметному преподаванию предметов начального образования. В рамках третьего педагогического условие проведен опрос учителей начальных классов коммунального государственного учреждения «Общеобразовательная школа № 76» города Алматы. Цель состоит в том, чтобы определить, существует ли понимание проблемы о метапредметном обучения. На основе результатов анкетирования разработана программа спецкурса. Учебный курс был проведен для будущих учителей начальных классов в 2021–2022 учебном году. Так, для опрошенных учителей начальных классов был организован научно-методический семинар с трудоемкостью 30 ч. Рассматривая педагогические условия метапредметного обучения предметов начального образования, мы определили, что необходима методика не только для начальной школы, но и для старших классов.

Ключевые слова: педагогическое условие, метапредметное обучение, начальное образование, обучение, дисциплина

Introduction

Effective implementation of meta-subject approach teaching of primary education disciplines requires an effective definition of pedagogical conditions. It is known that in the study of the course of functioning of a particular pedagogical system, the aspect of the quality and effective effectiveness of this system is considered. At the same time, it is important to determine what pedagogical conditions are that ensure the effectiveness of the pedagogical system. The effectiveness of meta-subject approach teaching of primary education subjects and the achievement of high-quality results are closely related to the existing conditions of the educational process. It is clear that these conditions are called pedagogical conditions. In particular, pedagogical

conditions mean the environment in which the pedagogical process takes place, the situation-the situation. In combination with the same environment, the pedagogical process arises, forms, develops, lives.

A special point is that the pedagogical conditions themselves undergo changes in the course of development, contributing to the pedagogical process. Therefore, in the study of the process of teaching primary education subjects from a meta-subject approach point of view and thereby ways to improve the effectiveness and quality of the educational process, the consideration of pedagogical conditions in this regard is of particular importance.

Based on the foregoing, the purpose of our research article is to determine the pedagogical conditions for teaching subjects of primary education in a meta-subject approach contexts.

Research materials and methods

In the course of teaching in primary school, it is important that students are able not only to master the content of subject education, but also to come to the fore in terms of their personal growth, to master universal methods of educational activity, thereby ensuring success at school for the entire period of study. The opinion of many scientists about this was already mentioned in the higher chapter. If we consider from the point of view of the problem of organizing meta-subject education in primary school at the present stage, it turns out that there are difficulties in terms of forming an understanding of meta-subject education in education for primary school teachers and providing them as a technological system.In connection with this, organizational and methodological conditions of a complex form have been identified that make it possible to teach subjects of primary education from a meta-subject approach point of view. It requires the definition and establishment of conditions in the meta-subject educational process as one of the components of the process of training future primary school teachers together with current primary school teachers.

Thus, the pedagogical conditions for the organization of teaching primary education subjects through a meta-subject approachare presented in Figure 1 as follows.

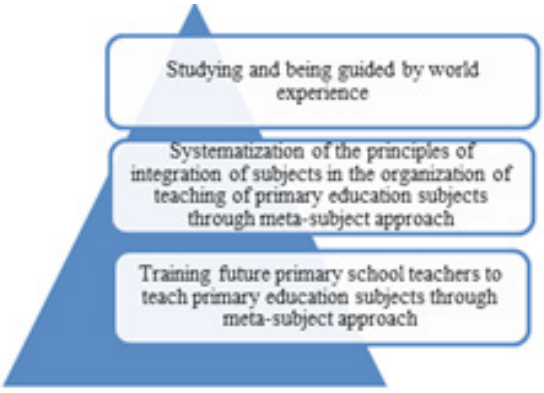

Figure. 1. Pedagogical condition teaching primary education subjects through a meta-subject approach

Condition 1. The need to review the results achieved in meta-subject education through the study of world experience is not only to develop the current consideration of the meta-subject education system, but also to determine how effective it has been. How is integrated training carried out today in such advanced countries of the world as Russia, China, Singapore, Canada? In order to find an answer to this question, we decided to conduct a review of the experience of these countries.

The education system of the Russian Federation since 2009 was approved by the "State federal standard of primary general education" №. 373 (Kolesina, 2009). The second subparagraph of the standard sets out the requirements for the results of students ' training. One of them is the meta-subject. That is, universal educational actions (cognitive, regulatory and communicative) mastered by students ensure the assimilation of key competencies and interdisciplinary concepts that form the basis of learning ability.

Today, among the countries of the world, the basis of the content of education of the Russian Federation is meta-subject training, which has been implemented in practice for the twelfth year (Federal State Educational Standard of Primary General Education, 2011). Next, we will focus on the experience of integrated learning in the educational program of the Republic of China.

At the 19th Party council of the *Republic of China* on September 17, 2017, minstrel Chen Baosheng spoke about the reform of the Chinese Student Core Qualities Development Program (Chinese Student Core Qualities Development Program), entrance exams to colleges, universities and programs for the development of basic learning outcomes of students. These reforms are important political changes in recent years in the field of Education. They break with the old educational model (grade-oriented model), which focuses on assessment. Thus began the era of STEAM — education, the implementation of integrated learning in China (The STEM education in China: there is a long way to go, 2013).

In 2018, the first textbook for elementary grades under the STEAM program was presented at the FangCaoDi International Training Center “Beijing Fangcaodi International School” in Beijing. The series of educational materials is based on project-based learning and is aimed at developing students ' thinking.

The peculiarity of this program is that it is guided not by individual topics, but by thematic modules. The fact is that less time is spent on the teacher's interpretation of the material. A lot of time is devoted to the independent work of students. The advantage of the new program is the active activity of students. They write observations in digital notebooks, conduct their own research. Teachers use innovative approaches to providing students with specific situations and problems. In the classroom, training is organized on the basis of a project so that students have the opportunity to study independently. Through it, the student has the opportunity to independently assimilate information and develop critical thinking.

Students of *South Korea* have a problem in the fields of physics, biology, mathematics, technology. According to the results of PISA, the interest, motivation associated with science was lower than in other countries of the organization for

Economic Cooperation and development (Korea Foundation for the Advancement of Science and Creativity, 2015).

South Korean scientists H. Lee and K. Park notes that primary school students did not have a clear idea of scientists and engineers.

Korea Foundation for the Advancement of Science and Creativity, founded in 1957, whose main mission is to promote scientific culture and nurture creative talents, the South Korean Ministry of Education, Science and Technology agreed that an integrative approach to STEAM disciplines is a key element in the restructuring of school education. After analyzing the experience STEAM education of the USA , South Korean scientists G. Yakman and H. Lee believes that the key to the development, improvement of scientific knowledge is the elements of the humanities. These are: aesthetics, ergonomics, sociology, psychology, philosophy, etc. the humanities. However, despite integration, it is stated that it is important that each subject maintains its own educational base.

In addition, G. Yakman, H. Lee presented their own definitions for each direction of STEAM — education (Yakman et al., 2012).

Science is the one that exists in nature and is influenced by it from the outside.

Technology is the transformation, transformation of the natural environment to meet the needs of humanity.

Engineering is the design of objects, processes and systems to meet human needs.

Mathematics is the study of numbers, symbolic connections, patterns, forms, uncertainties and arguments.

Art in turn, includes visual, language, humanitarian and physical art. First of all, language art, mastering all types of communication and communication, how they are interpreted; the art of music; physical art, athletic art; humanitarian art (social sciences), education, history, philosophy, political science, psychology, sociology, theology, etc.; visual arts, aesthetics that teach the oldest, most stable cultures of civilization.

STEAM allows students to develop discipline-specific thinking skills and functional literacy, that is, the ability to spread knowledge from one field of activity to another.

Functionally literate people can see the relationship between subjects. Students who learn on STEAM will be competent not only in one area, but also in a combination of several. Students of the Steam program can easily adapt to the changes taking place throughout life and improve the global community. STEAM also helps you better understand people and concepts related to other disciplines and cultures.

Condition 2. Teaching through meta-subject approuch students develop a figurative mindset and reveal their creative potential by connecting the general content of the subject with life. Such classes are distinguished by their conciseness, capacity, packaging, logical mutual agreement of the educational material at each stage of the lesson, and the huge information potential of the material. However, it determines the need to systematize the principles of integration of disciplines in the organization of meta-subject teaching of primary education subjects. The main

principle of the integration of disciplines is to provide students with scientific and synthesis knowledge about the unity of the world, conditionally considering scientific and natural and social-humanitarian knowledge in a separate area of knowledge. The principles of integrated learning are directly aimed at the main goal of training, the development of students ' thinking. The principles of integrated learning are shown in Figure 2:

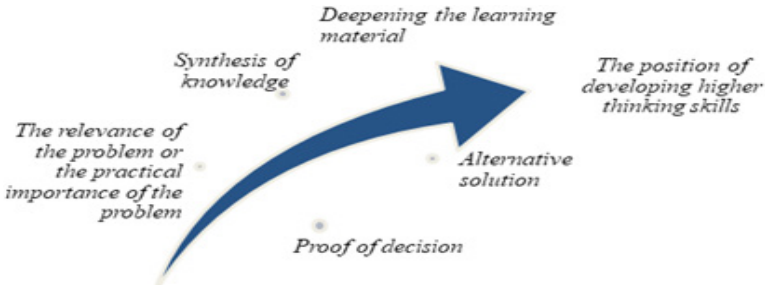

Figure. 2. Principles of integration of disciplines in the organization of teaching of subjects of primary education through meta-subject approach

Synthesis of knowledge. Acceptance of educational material in a whole, integrated, systematized form includes the breadth of the student's mind. Solving the problem studied by integration methods develops the activity and purposefulness of thinking.

Deepening the learning material. Deep understanding of the study material promotes broad thinking. The relevance of the problem, or the practical importance of the problem. Solving practical problems in the course of mastering educational material strengthens the practical direction of teaching, develops the student's critical thinking, the ability to compare theory and practice.

The relevance of the problem or the practical importance of the problem. Alternative solution Validity of the solution The position of developing high-level thinking skills strengthens the practical direction, develops the student's critical thinking, ability to compare theory and practice.

Alternative solution. Being able to use new methods in a certain situation, to be able to solve problems in a unique way, to be able to choose solutions, contributes to the development of special thinking. Comparing solutions develops quickness of mind, critical thinking, concentration of thought, consistency. Students' ability to think rationally, efficiently, and purposefully increases during the process of choosing the right decision, the shortest way to achieve the goal.

Proof of decision. Reasonable problem solving develops thinking skills. The goal of teaching subjects in a meta-disciplinary context is clear, the orientation is systematic. Education and training are inextricably linked in education, which strives to educate an intelligent citizen – a person with highly developed potential, who knows how to think innovatively, who is strong in spirit and who can use his knowledge for the advancement of society.

It shows that the degree of *development of thinking skills* is a guarantee of success

in the modern information society. In B. Bloom's taxonomy, the list of cognitive processes and pedagogical goals is presented according to the position from low-level cognitive processes to higher-level cognitive processes, that is, from easy to difficult. According to B. Bloom's taxonomy, a student cannot fully understand the concept until he remembers it, and if he does not understand what is being said, he cannot use the knowledge he has acquired correctly. According to this theory, the teacher should ask students questions (special questions starting with what? when? where? which?) that activate the lower level of thinking skills. At the same time, it is necessary to add questions that develop more serious analysis and evaluation skills. This group considers the use of more complex language structures during the composition of the answer, why? how? how can include questions starting with The interaction of content, thinking and language, the ability to formulate complex processes of thinking requires systematic development and training both in the native language and in the second and foreign languages studied (Ybyraiymzhanov, 2015).

In the course of observing these positions, training is aimed at the goal.

Condition 3. The next pedagogical condition for the organization of metadisciplinary teaching of primary education subjects is to prepare not only teachers currently working in schools, but also future primary school teachers studying at the university for metadisciplinary teaching of primary education subjects.

In order to ensure the fulfillment of this condition, a special seminar system was developed for school teachers participating in the pedagogical experiment section of our research and for current students as future primary school teachers. Since the selected topics for preparing future primary school teachers for teaching primary education subjects from a metadisciplinary perspective are consistent with the content of the work arising from the problems identified as a result of surveys of primary school teachers, a common seminar was developed.

The role of primary school teachers in the implementation of this task in primary school is huge. In order to determine whether or not they have an understanding of the issue of teaching from a metadisciplinary perspective, we took a survey from primary school teachers of the communal state institution "General Education School № 76". The survey questions are presented in Table 1:

Table 1. Survey questions

How do you understand the term "approach"?
What methods do you use as a basis for organizing the learning process?
Are you familiar with the concept of "meta-subject approach"? (Yes / No)
What do you know about the concept of " meta-subject approach "?
How many points would you rate your education within the concept of " meta-subject approach "? (on a scale of 1 to 10)
Are the concepts of " meta-subject", "interdisciplinarity", "integration" related to each other? Why?
What are the meta-subject shafts?
To what extent are meta-subject tasks found in the textbooks developed within the framework of the updated educational program today? Give 1-2 examples.

We present the results of the survey of primary school teachers (Figure 3) in the "results and discussions" section of our article.

Based on the results of the survey, the opinion that future specialists should be introduced to the methods of teaching primary education subjects in a meta-subject manner was guided by the opinion. Therefore, a special course program called "*Meta-subject approach to primary education*" was developed. The program is given in Table 2 below.

Table 2. Curriculum of the special course "Meta-subject approach to primary education".

Week	Topic name (lecture, practical lesson)	Number of hours	
		lecture	practical lesson
1	2	3	4
1	An understanding of the teaching of primary education subjects through meta-subject context 1. The goal and objectives of teaching primary education subjects through meta-subject context 2. Understanding the concepts of meta, meta-subject 3. Importance and structure of metadisciplinary teaching of primary education subjects	1	2
2-3	The study of the problem of teaching primary education subjects in a meta-subject context 1. Review of the works of Russian scientists who have studied the problem of teaching primary education subjects in a meta-subject context 2. Study of the problem of teaching primary education subjects in a meta-subject context	2	4
4-5	Psychological and pedagogical foundations of meta-subject teaching of primary education subjects 1. Consideration of the concept of teaching in a meta-subjectapproach in scientific psychological literature 2. Psychological features of meta-subject teaching of primary education subjects 3. In pedagogy, the issue of "teaching in a meta-subject approach" is considered	2	4
6	Ways of forming the worldview of students based on meta-subject teaching of primary education subjects	1	2
7	Methods of formation of students' worldview based on meta-subject teaching of primary education subjects	1	2
8-9	Classification of meta-subjects 1. "Education" meta-subject 2. "Sign" meta-subject 3. "Problem" meta-subject 4. "Task" meta-subject	2	4
10-11	Methodology of teaching primary education subjects in a meta-subjectapproach Teaching technologies, teaching methods used in meta-subject teaching of subjects	2	4

12	A meta-subject lesson is an effective way to achieve a meta-subject result 1. Analysis of metadisciplinary lessons published on the Internet, YouTube channel, magazine pages 2. Defining the features of the meta-subject lesson	1	2
13-14	Universal learning activities as a means of forming a meta-subject result 1. Educational 2. Regulatory 3. Communicative 4. Personal	2	4
15	Meta-subject tasks 1. Types of meta-subject tasks 2. Ways of composing meta-subject tasks	1	2
All classroom hours		15	30

According to the program, in the 2021–2022 academic year, seminars were held for 2nd-year students of the specialty 5B010200 – Pedagogy and methodology of primary education at the Kazakh National pedagogical university named after Abai.

In addition, these seminars were conducted for school teachers who participated in the organization of the pedagogical experiment. The following lines introduce the topic and brief contents of this workshop.

The concept of "meta", "meta-subject", "meta-subject approach" was defined under the first topic of the seminar course program. "Teaching of primary education subjects through meta-subject approach". The purpose, tasks, content and structure of the meta-subject approach were described. Since this is the first lesson of our course, our lesson developed further based on the lecture-dialogue form in order to clarify the difference between the concepts of "meta-subject" and "interdisciplinary connection". Our practical lesson continued with the creation of posters on domestic, far and near foreign research within the concept of "Meta-science education". Purpose: to inform future primary school teachers about the meta-subject teaching of primary education subjects, to form their knowledge.

The second topic presented in the program was called "Research of the problem of teaching of primary education subjects through meta-subject approach". (Asmolova, 2010; Gromyko, 1998; Gromyko, 2004; Khutorsky, 2012; Arshansky, 2017; Petunin, 2010; Kolesina, 2009; Ybyraiymzhanov, 2015; Kiryakova, 2016; Gross et al., 2005; Suslova et al., 2019; Baimuhanbetov, 2014) works about "meta", "meta-subject", "meta-subject approach" were introduced. During the implementation of the meta-subject approach, effective technologies, methods and approaches were analyzed. He carried out a review of the meta-subjects of the new model of educational subject — "Knowledge", "Sign", "Problem", "Duty". In the practical lesson, a chronological table of the problem "The study area of the problem of teaching of primary education subjects through meta-subject" was created.

The third topic of the program is called "Psychological and pedagogical foundations of teaching of primary education subjects through meta-subject". Within this topic, students were given the task of finding an answer to the question of what

personal qualities and meta-subject results a primary school student will have at the end of the training process organized in a meta-subject perspective before teaching primary education subjects from a meta-subject perspective. At the same time, work was organized to determine the psychological and pedagogical potential of their formation.

The fourth topic of the course is called "Ways of formation of students' worldview based on teaching of primary education subjects through meta-subject". The formation of a unified scientific image of the world has a special place in the development of students' worldview ideas, cognitive and creative activity.In order to solve this problem, effective methodical ways of development of the personality in natural harmony and its development in self-integrity were sought in the practical lesson.

The fifth topic of our course is called "Classification of meta-subject". The main task of each meta-subject has been determined. Ways of use in the learning process were discussed.

The sixth topic of our course is "Methodology of teaching primary education subjects through meta-subject approach". The students were introduced to the peculiarities of the organization of meta-subject lessons, the structure of meta-subject lessons, and the models of meta-subject results that they should master during the mastering of educational programs.In the practical lesson, analyzes were made of the meta-subject lessons of Russian and distant foreign teachers published in the Google browser and on the "You Tube" channel.

The seventh topic of our course is called "Meta-subject lesson - an effective way to achieve meta-subject results". In the framework of the topic, students got acquainted with the structure of the meta-subject lesson, its difference from the traditional lesson.In the practical lesson, the students analyzed the meta-knowledge formed within the framework of the traditional lesson and the meta-subject lesson. He developed posters on the topic.

The eighth topic of the proposed seminar is called "Universal learning activities as a means of forming a meta-subject result". Within the framework of the topic, ways of organizing cognitive, regulatory, communicative and personal learning activities of students were considered.

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Results and discussion

According to the results of the survey taken before the implementation of our special course, 20 % of the teachers who participated in the survey were familiar with the concept of the approach, as evidenced by their answers. However, we notice that the question about what approach is used as a basis during the organization of the teaching process caused a problem (28 %).42 % of teachers are familiar with the concept of meta-subject approach. It can be observed that only 5 % of the 42 % rate have the correct understanding of this approach.

It can be seen that 48% of teachers rated their knowledge on a scale of 1 to 10 on a scale of 1 to 10 points. It was found that it was difficult to answer the question of how the concepts of meta-subject, interdisciplinary connection, and integration are related to each other. And it was revealed that the inability to answer questions 7 and 8 at all means that teachers need to be provided with methodological assistance on this approach (Figure 3).

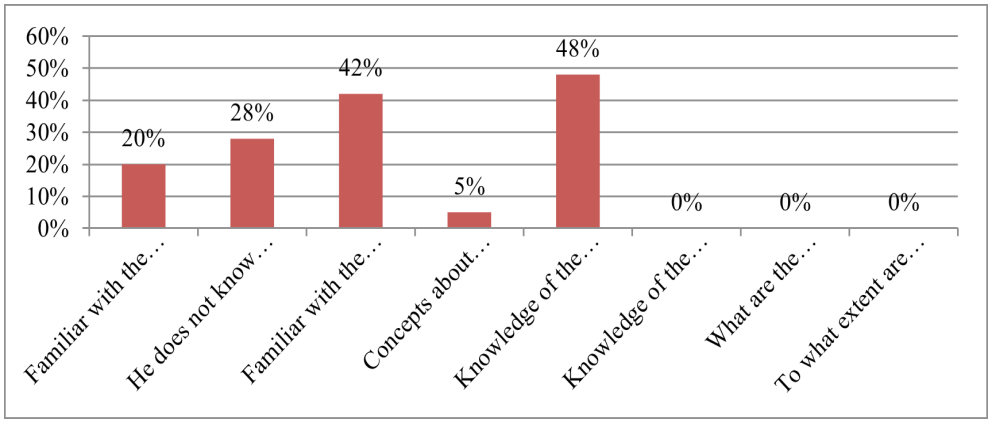

Figure.3. The result of the survey before the seminar

So, at the end of the special course, a questionnaire was taken again in order to determine the knowledge of the students and to check the knowledge of the teachers teaching in the experimental group.

According to the results of the survey, 100 % of the students who took part in the survey proved that they are familiar with the concept of methodology through their answers. However, we notice that 9 % of the students have a problem with the question of what approach is used during the organization of the training process.

100 % of students are familiar with the concept of meta-subject approach. It can be observed that only 92 % of the 100 % of indicators have the correct understanding of this approach.

We can see that 95 % of students rated their knowledge on a scale of 1 to 10 on a scale of 1 to 10 points.We noticed that it was not difficult to answer the question why the concepts of meta-subject, interdisciplinary connection, and integration are related to each other. And the fact that there were no students who could not answer questions 7 and 8 is a gratifying indicator. The results of the survey are presented in Figure 4 below.

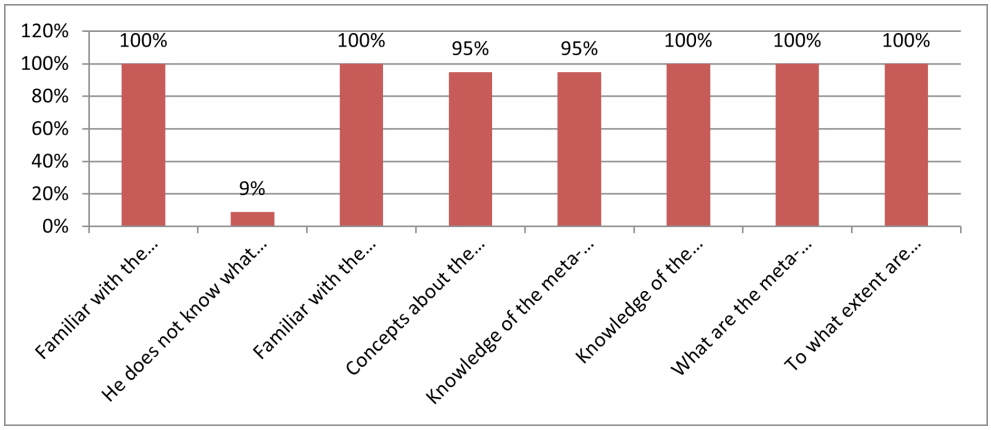

Figure.4. The result of the survey after the seminar

In addition to this seminar, in the 2019–2020 academic year, the program "Teaching of primary education subjects in a meta-subject perspective" was created for 30 teachers of the municipal state institution "General Education School No. 76" of the Almaty City Education Department, and a scientific-methodological seminar was held. was conducted.

The program with a labor capacity of *30 hours* includes nine interrelated topics, which are systematically mastered by teachers.

The main types of work at the scientific-methodical seminar, namely, lectures, working with literature sources, analyzing school programs, updated educational content, designing lessons, solving situations and other types of work were used.

School teachers are introduced to the methodological logic of meta-subject education, knowledge, symbol, problem, task, meaning, situation, idealization, drawing, etc. such important concepts and their contents were explained. The function, importance of each of these in providing students with meta-subject education and the effective way to master it were described in the form of lectures and practical lessons.

It was very interesting for teachers that in the course of meta-subject education, special attention is paid to the development of students' thinking ability, communication ability, ability to perform various learning activities consistently and consistently, understanding, and formation of reflexive skills.

During the seminar, school teachers openly expressed their thoughts about the challenges they face, and noted that they recognized the positive aspects of teaching from a meta-subject point of view, and in this way, there are great opportunities to raise the student's thinking methods and level to a new level.

Almost all the students and teachers working at the school shared their thoughts saying that they realized after the seminar that the subjects that are currently being taught piecemeal do not have enough potential to form and develop the student's whole mind, integrated worldview. This was the expected result, that is, the meta-subject results in education are the formation of theoretical thinking and the formation

of universal comprehensive learning activities. As a result of meta-subject education, the student should perceive the object of knowledge from all sides as a part of the system of knowledge about the world around him, as well as a way to recognize the larger system.

The thesis that "The purpose of meta-subject education is to accustom students to different ways of thinking, types of communication, and types of learning activities" was one of the aspects that teachers sought to fully understand. In the exchange of opinions on this issue, it was observed that the teachers still wanted to know deeply the types of thinking and the ways of their formation and development. Because in the process of meta-subject education, it is clear that the student understands that his cognitive abilities are being discovered and improved. Thus, the relationship between the teacher and the student becomes closer in the way of study and research. It is clear that students receive the information received in a wide channel, find new aspects of new information on their own, perform the educational task in a new format - all, in the end, show a new type of "scholarship". The aim of the seminar is for school teachers and students to receive such news with interest, to give them an impetus to further research on their own.

Conclusion

Having considered the pedagogical conditions for teaching primary education subjects through meta-subject perspective, we determined that a methodology for meta-knowledge, meta-methods, and meta-skills is needed not only for primary school, but also for higher classes. Because we believe that the quality education skills formed in primary school must be continued in the next stages of education.

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Заместитель директор отдела издания научных журналов НАН РК *Р. Жәлиқызы*
Редакторы: *М.С. Ахметова, Д.С. Аленов*
Верстка на компьютере *Г.Д. Жадырановой*

Подписано в печать 30.06.2023.
Формат 60x881/8. Бумага офсетная. Печать - ризограф.
40,0 п.л. Тираж 300. Заказ 3.

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