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Implementation of the meta-subject approach in the process of foreign language training of future teachers at a pedagogical university

A future teacher who speaks foreign language is in more demand by school today than ever before. Pedagogical universities change their activities to meet the school educational system's requirements. The need of English for future teachers is determined by the necessity of subject activity. In the process of teaching the teacher not only stimulates the mastering of the basics of science, but also creates the opportunity to develop learning skills, critically realize their experience of foreign language usage. First and second year students, while learning foreign language, improve their speaking skills, learn to use the best way to build their learning activity. The goal of the next step of professional training is to master teaching methods, which will let the students use their foreign language knowledge. Teaching English on the basis of meta-subject approach principles will allow to solve these problems. The article is devoted to the analysis of solving the problems of foreign language education of future teachers. The author suggests using the meta-subject potential of a foreign language as a general strategy of foreign language education. The experimental pedagogical work carried out at the Pavlodar Pedagogical University allows us to draw a conclusion about the effectiveness of the proposed ideas.

Keywords: future teachers, meta-subject approach, metacognition, foreign language education, high school, distance learning, teaching methods, readiness to teach, COVID-19.

Introduction

The meta-subject approach is a method of applying discoveries of modern conditions in the theory of metacognition of forming professional competencies of a future teacher. This article presents an analysis of the features of using the meta-subject approach in teaching a foreign language to future teachers at the university. The concept of trilingual education, as the basis of reforming of humanitarian component of higher educational, pedagogical content, gives the study of foreign language equal rights along with Kazakh and Russian languages. Images formed in the mind, visions by means of foreign language improve mastering methods of real world and its characterization.

The content of metacognitive process and metacognition form the conceptual framework of meta-subject approach. Interdisciplinary research of metacognition object emphasizes complexity of mechanisms realization of metacognition process: metacognition becomes the object of scientific interest of philosophers, psychologists, teachers. Metacognition takes a specific place in psychological and pedagogical research, because it is directly connected to the ability of personality to gain cognition methods.

One of the famous researchers of metacognition specifics as fundamentals of teaching, D. Flavell finds the direct dependence between the memory process and generated knowledge [1]. Personality can control the memory process and storing of information consciously and unconsciously. D. Flavell comes to conclusion that it is possible to influence these processes to improve cognition results. The research of psychologists from different countries in the second half of the 20th century was based on the searching ways to improve memory processes for developing cognition strategies.

The Soviet psychologist L.S. Vygotsky theorized the processes that can be considered metacognitive. Introduction to scientific use of the theoretical construct "Zone of immediate development" contributed the reasoning of interconnection between teaching and development. Before the discoveries of L.S. Vygotsky, the term "development" in the Soviet pedagogics wasn't used in didactic works [2]. The role of a teacher is to conduct quality conversion from the development zone, where the student is at the actual moment of knowledge, to the zone in which the contradiction between what was necessary to master and possibilities of the student will be overcome. Acting as facilitator in this conversion, the teacher can contribute the formation of student's skills to monitor their own skills and control the cognition process. The cognitive skills

being formed from the beginning of training allow students to develop flexible ways of self-regulation of behavior, thinking and metacognition formation competences.

Metacognition in the works of modern scientists (B.M. Velichkovsky, J. Byrnes, and W. Goswami), can be described as managerial functions of management [3–5]. The personality acts as a manager of his own activities, when he sets goals, plans, controls and evaluates his knowledge. And this side of his activity corrects and manages all that may be called metacognitive knowledge. Metacognitive knowledge includes the complex of knowledge (table 1).

Table 1

Metacognitive knowledge

Knowledge content	Examples
About cognitive abilities	According to the lesson topic, I can't formulate my thoughts clearly and concisely
About the task completion sequence	I must understand what I will speak about I must master the vocabulary of a given topic I must overcome my shyness
About the task completion strategies and tactics	I will study the given topic I will master the vocabulary of a given topic I will consider all the ideas I agree with I will find the arguments to prove my idea I will present my speech I will rate my performance

It can be quite difficult for a student to implement the regulation. This is due to the fact that the student cannot always differentiate his emotions and real result. If the student manages to do this, he will evaluate strategies and tactics he has already used. In the process of goal setting and planning of cognitive activity, the student correlates his goals with teacher's goals. If the goal is clear to him, student makes the system of tasks as the sequence of stages to get to the goal. Planning activity is what the student doesn't always realize systematically and in detail. Nevertheless, the student has the idea of achieving the goal. Student can plan his activity according to this image of a goal. The choice of strategies and knowledge tactics is carried out on the basis of experience. On this stage teacher can offer new ways to master knowledge. In case the strategy is not so effective, student can find new one. This is the point of difficulty, which students overcome faster and more successfully if the teacher stimulates student's motivation.

The purpose of the research, the results of which are presented in this article, was to analyze the specifics of the implementation of the meta-subject approach in the process of foreign language training of future teachers at a pedagogical university.

Research objectives

1) To determine the range of problems of foreign language training of future teachers in the conditions of restrictions associated with the pandemic. The solution of this problem was based on the analysis of scientific research related to distance learning.

2) To test the course "Meta-subject approach in teaching school subjects in a foreign language" (by A.T. Kabbasova), which is prepared for future teachers of the natural-mathematical cycle. The methods used in the experiment were selected in accordance with the possibilities of online learning.

3) Determine the attitude of students to the course studied, to the knowledge gained and the competencies formed. The attitude was determined being based on an online survey.

Methods and materials

The research was carried out within the framework of a dissertation research involving methods of theoretical and practical levels. The analysis, synthesis, and generalization helped to identify the main problems associated with the use of the meta-subject approach in teaching a foreign language in higher education and ways to solve them.

For the analysis an online questionnaire was used, which, using scaling, made it possible to assess the attitude to the course studied and readiness to use the meta-subject potential of a foreign language. We used an 11-point scale. According to V. Avanesov: "The eleven-point scale, in comparison with the ten-point scale, has advantages of a psychological nature. As reference points of the scale, three comparative concepts

familiar to each person are used — the lowest value of “one”, which is the lowest worse, the average value of “six”, attributed to the easily distinguishable and most common in practice average level of knowledge, and the highest score of “eleven”, through which it becomes possible to distinguish the most excellent student from among the excellent students” [6].

The questionnaire has a closed form. Students had the opportunity to answer questions in an online format using Google forms.

Place of the experiment: Pavlodar Pedagogical University.

Time: second semester of the 2020–2021 academic year.

Number of survey participants: 35 3rd and 4th year students.

The materials for the study was the process of mastering the content of the course “Meta-subject approach in teaching school subjects in foreign language”, the results of a survey developed by the author of the course, as well as the results of the previous stage of the dissertation research.

Results and discussion

At the previous stages of this research we identified the main concepts related to the use of the meta-subject approach in teaching a foreign language at a pedagogical university. The leading concept is “meta-subject potential” which means the possibility of using the available universal, integrating means of an academic discipline, intersubject connections for the development of the pedagogical process, phenomena, and the ability of subjects of knowledge to reflect. Signs of meta-subject potential: universality, integrativity, intersubject connections, reflexivity [7]. We have identified problems in understanding of this concept, the specifics of its application in future professional activities related to teaching in a renovated school. To solve this problem, the course “Meta-subject approach in teaching school subjects in a foreign language” was developed. The course content is focused on the formation of foreign language competencies, methodological competencies, as well as meta-subject competence. The developed course was offered for students of the 3rd–4th years, who have already completed the basic course of special and methodological disciplines. The course was offered to students as an additional type of training, implemented through the Institute of Additional Education of Pavlodar Pedagogical University. The course is designed to take 72 hours. Due to the fact that the training took place during the period of restrictions associated with the spread of the pandemic, we had to study the specifics of the organization of the educational process in the new conditions.

The problem of distance learning is one of the complex and at the same time studied topics for research. J.L. Moore and co-authors identified different expectations and ideas about the labeling of the learning environment: distance learning, e-learning and online learning are not the same thing. Researchers interpret these concepts differently [8]. This differentiation of concepts was not the most relevant object of attention for the practice of organizing new forms of education. During the pandemic, researchers turned to more significant issues, the most important of which was «how to organize effective interaction in online learning?». L. Amir [9], I.S.K. Anwar [10], A.K. Balachandran [11], R.K. Bisht [12], B.D. Colpitts [13], A.R. Kanojiya [14], P. Paudel [15] analyzed the response of students to the acceptability of online education in difficult conditions developed in connection with the pandemic. The difficulties that students experience are psychological in nature. The task of the teacher is to reduce anxiety about this learning experience, to provide students with the opportunity to be an equal partner in the online environment, who knows what they are doing, why they are doing it and what results they can achieve when performing certain cognitive actions.

Based on the analysis of the effectiveness of modern training strategies and tactics, training methods were selected. The largest group of methods is related to group learning. The methods of mutual learning are not an innovation, since the technologies developed and systematized in the last century were also popular in traditional learning. For example, by such authors as A.K. Mynbayeva, Z.M. Sadvakasova [16]. At the university we actively use the methods of mutual learning, which makes learning English meaningful and interesting. When students work in online groups, they become part of a community where they support and help each other. Among teachers who organize group training methods like case-study, brainstorming, Jigsaw, Round table and other are already well-known. Let's look at some of the methods that we used in the classroom with students during the course. In the online training, we used the capabilities of Zoom, a popular program for organizing a video conference, the features of which allow us to divide a group into subgroups, organize the focus of attention on who is speaking.

Pedagogical reality offers different methods of organization of cognition. Actual forms of group work can be realized through the technics such as “Bono’s six hats”, “Brainstorming”, “Three steps interview” and the others. These methods are wildly spread and often used by the teachers.

Here is an example of the method we used in the classroom.

The game “Playing this role...”.

Goal of the game: to be able to formulate your ideas on the basis of foreign language knowledge according to the social and actual problems and regulate the cognition of the problem and your attitude to the knowledge.

Organization of work: 5–6 students participate in the game. Take the problem which will be discussed in the group, for example, the problem of air pollution. Each of the participants plays a role. For example, a factory manager, a resident of the city. Forming the message, the player should not just say what he is going to do to solve the problem, but also share the feelings he felt while preparing this message.

Business game “Teachers on TV show”. The method forms the skills of active listening, which contributes to obtaining an extensive flow of information, demonstrates the possibilities of pedagogical analysis and discussion.

Organization of work: the conference simulates a studio in which the teacher acts as a TV presenter, four representatives of different groups as guests, and the rest as an audience. The content of the conversation is based on some pedagogical problem, for example, cooperation between family and school, school performance, education of the personality qualities of a teenager, pedagogical support in choosing a profession, etc.

The algorithm for implementing the method.

The topic for discussion is chosen, which is voiced by the moderator. Four participants (guests of the studio) were given cards with the roles that they perform during the discussion. The audience evaluates, “calls” the studio and asks questions. The moderator summarizes the results, organizes feedback.

Solving problem situations “Mosaic”.

The method is used to develop listening and speaking skills through solving and discussing pedagogical situations.

Organization: the work is carried out in groups of 3 to 5 people, each of which is offered images in jpg format. The teacher-presenter, who provides the floor for the speech, organizes feedback. Preparation time: 5 minutes, a vocabulary could be offered for the drawing.

The algorithm for implementing the method.

After the groups assemble the mosaic, they need to give a complete description of the pedagogical situation in the picture on the following logical questions: what problem did you see in the picture? What contradictions are at the heart of this problem? How can you prevent and solve this problem, in your opinion? The audience listens, asks questions. The moderator summarizes the results.

In the pedagogical practice of training future teachers in the conditions of distance learning CLIL methods are used, for example, the study of the effectiveness of this technology was investigated by B.A. Zhetpisbayeva, D.V. Dyakov, S.A. Shunkeeva. These authors offer a summary of the experience of implementing this technology. The selection and development of resources for the course at Pavlodar Pedagogical University was carried out on the basis of the plan proposed by the authors [17]

The presented examples are a variant of organizing group work. In these tasks, students not only solve didactic tasks that relate to the development of a foreign language, but also learn to critically comprehend pedagogical problems. The variety of technologies, methods, and strategies that are offered to help a foreign language teacher to teach students of a pedagogical university can be enriched by intersubject connections and supra-subject meaning. For this purpose fragments of biology, chemistry, and physics lessons that were conducted in English were provided for analysis. Students themselves developed lesson plans with teaching in a foreign language in their subjects. The work based on the ideas of meta-subject will give tangible results, since a foreign language was used not only as a means of communication, but also as a way of learning.

After completing the course, students were offered a questionnaire, as answers to which were asked to evaluate on an 11-point scale, where the lowest score is 1, unsatisfactory – 2, somewhat unsatisfactory – 3, satisfactory – 4, below average – 5, average score – 6, above average – 7, good – 8, very good – 9, excellent – 10, highest – 11.

1. Evaluate your competence in goal setting, planning a lesson in a foreign language on an 11-point scale.

This question allows you to determine how highly future teachers rate their forecasting and planning skills.

2. Evaluate your competence in organizing classes in a foreign language on an 11-point scale.

This question is related to the knowledge of teaching methods, which were expanded and consolidated through practical and teaching skills during the course of studying the course.

3. Evaluate your level of readiness to use the meta-subject approach in teaching school subjects in a foreign language on an 11-point scale.

The statistics are presented in table 2.

Table 2

The ratio of the value and percentages of the subjects

The value of the 11-point scale	Lexical and evaluative equivalents	Number of test subjects		
		question 1	question 2	question 3
1	Lowest mark			
2	Unsatisfactory			
3	Somewhat unsatisfactory			
4	Satisfactory			
5	Below average	1		
6	Average mark	3	6	
7	Above average	10	11	12
8	Good	8	5	8
9	Very good	5	6	7
10	Excellent	6	6	7
11	Highest	2	1	1

Interpretation of statistical data:

1. Self-assessment of the competencies of goal-setting, lesson planning in a foreign language.

According to statistics, at the “highest” level 2 students are proficient in goal-setting and lesson planning in a foreign language, which is 5.7 % of the total number of respondents. These students define their skills to choose the content of the goal, formulate the goal, set tasks relative to this goal, plan the lesson in a foreign language as formed. During the course, the students discussed the strategy of goal setting, the structure of the teacher's actions, the selection of content for goal formulation, as well as the tactics of teaching students goal setting. 6 (17.1 %) students are rated as “excellent” at the level of goal-setting and lesson planning skills in a foreign language. 5 (14.3 %) of respondents rate themselves at a “very good level” of proficiency in these competencies. They believe that 8 (22.9 %) of the students have mastered these competencies “well”. 10 (28.5 %) and 3 (8.6 %) students rated themselves “above average” and “average”, respectively. 1 (2.9 %) student rated themselves below average. This is a fairly high self-esteem: 31 (85 %) students rated themselves with above-average scores, indicating confidence in their goal-setting and lesson planning skills in foreign language.

2. Self-assessment of the competence of the organization of classes in a foreign language.

According to the obtained data, 1 (2.9 %) student gave himself the “highest score”. During the course, students not only analyzed the lessons of biology, chemistry, and mathematics in a foreign language, but also developed and demonstrated the skills of organizing classes in a foreign language. The developed plans were discussed, and certain adjustments were made to them. Evaluation and analysis of the work allows to reflect on the experience gained. On this point, students rate themselves quite highly. 6 (17.1 %) students rated themselves “average”, 11 (31.4 %) students rated themselves “above average”, and 5 (14.3 %) students rated themselves “good”. The rating of “very good” and “excellent” was given by 6 (17.1 %) students in each category.

3. Self-assessment of the readiness to apply the meta-subject approach in teaching school subjects in a foreign language.

12 (34.2 %) students rate their readiness as “above average”. 8 (22.8 %) students rated themselves “good”. The grades “very good” and “excellent” were given by 7 (20 %) students each. One student gave himself a top grade. During the course, students received a lot of information about the specifics of the implementation of the meta-subject approach, and were also given the opportunity to test the provisions of this approach during the development of their own lesson plans. Each lesson was aimed at the formation of indi-

cators of the meta-subject of the lesson. The result of this work can be considered a high level of assessment of readiness to use the meta-subject potential of a foreign language in teaching their subjects, all 35 students gave themselves grades above the 6 value of the scale.

Conclusion

Presented research materials analyzed the problem of using the meta-subject potential of a foreign language in the training of future teachers. The meta-subject approach allows future teachers to align their ideas about their subject of future activity, about the content of the discipline that they will teach in a foreign language. The features of the application of the meta-subject approach in the foreign language education of students of the pedagogical university revealed in the course of the theoretical analysis direct the further search for the development of a special course that can bring the students' knowledge about the meta-subject into a single system. The developed course was introduced during the pandemic, which determined the specifics of the choice of teaching methods and forms of training organization. An analysis of the experience of researchers in the organization of the educational process during the pandemic showed that students have difficulties in adapting to online learning. In this regard, the organization of classes in online mode should be clearly regulated, students should be aware of the goals and objectives of any type of activity and predict the expected results. The teacher, acting as a facilitator, supports students in their cognitive activities. Taking into account these features, it was possible to organize optimal ways of interaction during the testing of the course "Meta-subject approach in teaching school subjects in a foreign language". The results obtained during the survey allow us to speak about the high importance of this content for students, and, accordingly, the effectiveness of the course as a whole.

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А.Т. Каббасова

Педагогикалық университетте болашақ мұғалімдерді шет тілінде оқыту процесінде метапән тәсілін жүзеге асыру

Шет тілін меңгерген болашақ мұғалім бүгінде мектепке бұрынғыдан да сұранысқа ие. Педагогикалық университеттер мектептегі білім беру жүйесінің осы қажеттілігін қанағаттандыру үшін өз қызметін қайта құруда. Болашақ мұғалімдер үшін ағылшын тілінің қажеттілігі іс-әрекет пәнінің қажеттіліктеріне байланысты. Оқыту барысында мұғалім ғылым негіздерін игеруге ықпал етіп қана қоймайды, сонымен қатар оқу дағдыларын дамытуға, шет тілін қолдану тәжірибесін сыни тұрғыдан түсінуге мүмкіндік береді. Бірінші және екінші курс студенттері шет тілін меңгеріп, сөйлеу дағдыларын жетілдіреді, оқу іс-әрекетін құрудың онтайлы тәсілдерін қолдануды үйренеді. Кәсіби дайындықтың келесі кезеңінің мақсаты: оқушыларды шет тілін оқуда үйретуге мүмкіндік беретін оқыту тәсілдерін меңгерту. Метапәндік ұстаным қағидаттарына негізделген ағылшын тілін оқыту осы міндеттерді шешуге мүмкіндік береді. Мақала метапәндік көзқарас тұрғысынан болашақ мұғалімдердің шет тіліндегі білім беру мәселелерін шешуді талдауға арналған. Автор шет тілінің метапәндік әлеуетін шет тілін оқытудың жалпы стратегиясы ретінде қолдануды ұсынған. Павлодар педагогикалық университетінде өткізілген тәжірибелік-педагогикалық жұмыс ұсынылған идеялардың тиімділігі туралы қорытынды жасауға мүмкіндік береді.

Кілт сөздер: болашақ мұғалімдер, метапәндік тәсіл, метатану, шет тілдік білім беру, жоғары мектеп, қашықтықтан оқыту, оқыту әдістемесі, сабақ беруге дайындық, COVID-19.

А.Т. Каббасова

Реализация метапредметного подхода в процессе иноязычной подготовки будущих учителей в педагогическом университете

Будущий учитель, который владеет иностранным языком, сегодня как никогда востребован школой. Педагогические университеты перестраивают свою деятельность для удовлетворения этой потребности системы школьного образования. Необходимость английского языка для будущих учителей обусловлена потребностями предмета деятельности. В процессе преподавания учитель не просто способствует усвоению основ наук, но и создает возможности для развития умений учиться, критически осмысливать свой опыт использования иностранного языка. Студенты на первом и втором курсах, изучая иностранный язык, совершенствуют свои речевые навыки, учатся использовать оптимальные способы для выстраивания своей учебной деятельности. Цель следующего этапа профессиональной подготовки — овладеть способами преподавания, которые научат школьников применять в учебе знание иностранного языка. Обучение английскому языку, основанное на принципах метапредметного подхода, позволит решить эти задачи. Статья посвящена анализу решения проблем иноязычного образования будущих учителей с точки зрения метапредметного подхода. Автором предложено использование метапредметного потенциала иностранного языка как общей стратегии иноязычного образования. Проведенная в Павлодарском педагогическом университете опытно-педагогическая работа позволяет сделать вывод об эффективности предложенных идей.

Ключевые слова: будущие учителя, метапредметный подход, метапознание, иноязычное образование, высшая школа, дистанционное обучение, методы обучения, готовность к обучению, COVID-19.

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