

**Institute of European Integration
(Warsaw, Poland)**



**Instytut Integracji Europejskiej
(Warszawa, Polska)**

**PROBLEM SPACE OF MODERN SOCIETY: PHILOSOPHICAL-
COMMUNICATIVE AND PEDAGOGICAL INTERPRETATIONS**

Collective monograph

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This collective monograph offers the description of philosophical bases of definition of communicative competence and pedagogical conditions for the formation of communication skills. The authors of individual chapters have chosen such point of view for the topic which they considered as the most important and specific for their field of study using the methods of logical and semantic analysis of concepts, the method of reflection, textual reconstruction and comparative analysis. The theoretical and applied problems of modern society are investigated in the context of philosophical, communicative and pedagogical interpretations.

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**APPLICATION OF CLOUD TECHNOLOGIES FOR ORGANIZATION OF
COLLECTIVE EDUCATIONAL AND COGNITIVE ACTIVITY
OF FUTURE TEACHERS**

***Abstract.** The article raises the problem of using cloud technologies in the process of organization of collective educational and cognitive activity of future teachers as an innovative means of improving their professional training. The essence of concepts "collective educational and cognitive activity", "collective forms of training", "cloud technologies", "cloud services" is revealed. An attempt has been made to classify cloud services for opportunities to organize the collective educational and cognitive activity of participants in the educational process and submit their respective recommendations. The elements of own methodical techniques for teaching students to methods of working with cloud services in the process of creating websites using Web-quest technology are proposed and disclosed. The application in the educational process of examples of mental maps, virtual boards, clouds of words, services for creating interactive exercises and Google services are demonstrated. It is noted that the use of cloud services helps to form a new learning culture for future teachers, to increase their cognitive, research and creative activities, intellectual and communicative abilities.*

Introduction.

The 21st century requires from the members of the society "new thinking and action", of the innovational and alternate approaches, of group activities, of professional mobility, as a consequence, of systematic and effective learning along of all life. The motto "lifelong learning" will be mandatory, and even the basic condition of human existence.

The person of the future must respond to a number of well-known criteria, for example: be able to "learn in order to know", "learn in order to act", "learn in order to live together", and the main is "to learn in order to live". These are the principles of education that World Organization UNESCO has proclaimed in theirs Trading report [1].

The future teacher should be prepared to move from traditional education to one that forming not only knowledge but also the ability to communicate, work in a team, to think creatively and critically.

The search for such forms of training, which would be based on the use of interactive methods, active interaction of students among themselves, which would help to develop the skills of students that will help them to be successful in modern society, is becoming relevant. The solution of these tasks determines the introduction into the educational process of the newest forms of organization of educational and cognitive activity, which stimulate co-creation, cooperation of participants in the educational process.

Ukrainian and Russian scholars studied the pedagogical foundations of the process of cognition in contemporary higher educational institutions: A. Aleksyuk, Y. Babansky, V. Davydov, V. Lozova, P. Podkasisty, M. Pistrak and others.

The process of management of educational and cognitive activity of young people is reflected in scientific works of E. Belkin, L. Klymenko, Y. Shcherban, N. Talizina and others. Conditions for effective organization of educational and cognitive activity of student youth were considered (P. Autonomov, V. Buryak, L. Petrenko, M. Skatkin, A. Sorokin and others). Theoretical and practical principles of organization of collective educational and cognitive activity were investigated (P. Arends, V. Dyachenko, S. Kagan, V. Korneshchuk, V. Kotov, H. Leymets, M. Long, P. Neeshn, N. Pozhar, G. Sereda, O. Serynak, M. Vinogradov, V. Vichrusch, L. Yavorovskaya and others). The works of A. Andreev, S. Bogdanova, V. Burov, I. Bykhovsky, N. Khmil, A. Korovko, E. Patarakina, L. Fedorova, B. Yarmakhov, M. Zolochevskaya, and others are devoted to pedagogical aspects of educational activity on the Internet, use of Web technologies and technologies in the process of teaching Internet technologies, in particular technologies Web 2.0 and cloud technologies. The works are devoted to pedagogical aspects of educational activity on Internet, use of Internet-technologies in the process of teaching, in particular use of technologies Web 2.0 and cloud technologies: A. Andreev, S. Bogdanova, V. Burov, I. Bykhovsky, L. Fedorova, N. Khmil, A. Korovko, E. Patarakina, B. Yarmakhov, M. Zolochevskaya, and others.

Particular attention deserves the organization of collective educational and cognitive activity of participants in the educational process. Its realization gives the teacher the opportunity to optimally combine the best achievements of the traditional educational system and information and communication technologies, the leading place among which possess cloud technologies.

The problems of their implementation in the educational process are quite intensively investigated in recent years in scientific researches of domestic and foreign scientists, in particular G. Aleksanyan, V. Bykov, L. Galkina, S. Litvinova, O. Merzlikin, N. Morse, V. Oleksyuk, M. Popel, G. Protsenko, L. Rozhdestvenskaya, Z. Seidemetova, S. Semerikov, A. Stryuk, Y. Trius, V. Shevchenko, M. Shishkina, T. Vakalyuk, B. Yarmakhov, Y. Zaporozhchenko, O. Zaslavsky, and others. At the same time, it should be noted that despite the sufficient number of the above-mentioned studies, the problem of using cloud

technologies in the process of professional training of future educators needs further theoretical and practical development.

1. The purpose of the article.

To highlight methodical features of application of cloud technologies for organization of collective educational and cognitive activity of future teachers.

2. Collective educational and cognitive activity of future teachers as a pedagogical problem.

Students' activities on assimilating the content of education are carried out in various forms, which determine the external aspect of the organization of the educational process. It depends on the goals, content, methods and means of learning, material conditions, the composition of the participants in the educational process and its other elements. In addition, there are different classifications by the number of students, time and place of study, the procedure for its implementation.

The results of the analysis of domestic and foreign scientific research P. Arends, I. Cheredov, S. Kagan, A. Kyrychuk, V. Kotov, M. Long, H. Lyymets, P. Neysn, N. Pozhar, E. Strachar, M. Vinogradov, V. Vihrusch, A. Yaroshenko, show that one of the most important factors in improving the educational process is the usage of the potential of collective educational and cognitive activity.

According to S. Babatina, one of the most effective methods of intensifying educational and cognitive activity of students is the collective form of training, which is understood as such organization of the educational process, when each student in turn collaborates with different members of the team (studying in pairs of variable composition) [2]. Looking "*collective educational and cognitive activity*", we agree with the definition of O. Sernyak, which under this concept understands the type of educational activity, which implies realization of the objective necessity of the students in cooperation and their subjective need for communication, namely: awareness of the students of the common the purpose of educational activity, the unification of the efforts of all participants and the purposeful division of labor in order to fulfill the joint educational task, ensuring the conditions for collective interaction of students, involving interpersonal relations interconnection, interaction and mutual responsibility, co-ordination and coherence of action, mutual understanding, mutual control between members of the educational association in the process of solving a collective task [3].

It should be noted that such an interpretation of the concept of "collective educational and cognitive activity" should be considered in relation to any participants in the educational process, in particular, and students of future teachers. The application of their collective cooperation allows "to fully realize the concept of interactivity through the organization of so-called co-teaching or mutual learning" [2]. In this situation, the student simultaneously acts as the recipient of educational material, repeater of knowledge and the generator of new creative ideas.

The concept of the organization of collective educational and cognitive activity is realized in the system of principles, the main and of which is the principle of compulsory and continuous exchange of knowledge, in which all members of the group transmit to each other material learned in the process of learning.

That is, the idea of Y. Komensky is realized: one who teaches others learns not only through the consolidation of the acquired knowledge by repeating it to another, but also through the possibility of penetrating more deeply into the essence of things [4]. There is systematization of collective knowledge, the process of transforming the knowledge of an individual into the achievements of the whole collective, which promotes not only the deepening of their own knowledge, but also the formation of skills to study and work in a team. Also, during the training of future teachers, it is necessary to take into account the fact that students must not only acquire the necessary knowledge, skills and skills on the subject, but also get acquainted with different forms of learning and learn the peculiarities of their use in learning process.

In modern terms, there is the notion of "e-collaboration" – electronic co-work, when the whole world moves towards the exchange of information in real time and embedded data exchange systems [5]. In academic definitions, the prefix "e" mainly refers to the use of Internet technologies, and in practical terms – the concept has a wide range of definitions relating to any electronic technology. Yes, e-collaboration is a set of actions aimed at supporting people-to-people interaction electronically through the Internet, working together to solve common problems. The main defining elements of e-collaboration are:

- a common task that can be subdivided into subtasks;
- a list of roles that will help you accomplish individual subtasks for a common task;
- technologies and services of electronic collaboration; people involved in the general task;
- certain competences owned by people involved;
- the physical (material) environment in which involved people are active;
- social environment [6, p.641].

The results of the analysis of the professional activity of the teacher, his professional training allowed identifying a contradiction that negatively affects the organization of the educational process, between the new requirements for education and the outdated forms and methods of organizing the educational and cognitive activities of students. At the present stage of the development of the information society among the various means that contribute to the effectiveness of the organization of the collective educational and cognitive activities of those who are studying, special attention is deserving of cloud technologies.

3. Characteristics of cloud technologies in the context of organization of collective educational and cognitive activity of students.

Among modern promising information technologies, the usage of which allows teachers to solve a variety of educational tasks, it is worthwhile to highlight cloud technologies. In the context of our research, cloud technologies will mean modern IT data processing technologies that enable the user to remotely use computer resources as Internet services without the use of local software to solve various tasks. But, along with this concept, researches also consider "cloud services", in determining the essence of which we will adhere to the views of V. Bykov and M. Shishkin, which under cloud services mean "services that provide the user with network access to a scalable and flexible organized pool distributed physical or virtual resources provided in a self-service mode and administration at its request (software, space for storage data, computing powers, etc.)" [7, p. 38].

According to A. Zaslavsky, "the use of cloud technologies, allows: to save and jointly edit documents; conduct surveys among the subjects of the educational process; jointly perform design work to create and edit presentations; plan your time and time to work in a group; to make effective decisions on planning, organization of educational and cognitive activity; Provide the ability to create and use learning tools (Google Drive)" [8]. A. Stryuk also notes that cloud-based learning enhances the share of group learning and active forms of student learning, intensifies their autonomy in gaining knowledge and skills acquisition, and integrates technology and non-audit work with the use of combined learning [9].

Given the fact that today there are a lot of cloud services, in the context of our study, it is important to turn to the characteristics of those that are expedient to use in the educational process for collective educational and cognitive activity future teachers.

The most widespread cloud services that provide a wide range of educational opportunities for both students and teachers are Google services. Among the most popular today are Gmail, Google Drive, Hangouts, Google Docs, Google Photos, Google Keep, Google Site, Blogger, and YouTube. Based on work [10], we briefly describe some of them.

Integrated office applications (Docs, Sheets, Presentations and Forms). The main purpose is to create and edit standard documents, spreadsheets and presentations, as well as to support the function of collaborating with them.

Google Documents can be used for work on problem tasks that are united by a common theme or idea with elements of a role-playing game and with a step-by-step description of the procedures; designing tasks for the search, selection, transformation, interpretation of information from the Internet, etc.

Google Tables can be used to systematize learning materials, design homework research and experimentation in various types of activities. You can apply different types of tables: table-characteristic (concept, properties); comparison table; a table to fill gaps (for

fixing formulas, concepts, etc.); a table with the results of joint research or project work; table rating; self-esteem table; table report; table of achievements.

Google Forms is cloud service with the help of which it is possible to compile surveys and questionnaires, to easily and quickly organize various kinds of events (educational, methodical), to accumulate the necessary data, and also to organize the control of knowledge of pupils [11]. This service can be used for self-assessment reflection training and control tests.

Google Presentations. You can apply different types of presentations: presentation-report (about properties, devices, phenomena, etc.); presentation-biography of the scientist; presentation "History of one discovery"; presentation-performance of the group; presentation, report and application sharing students.

Google Sites. Website constructor, which is designed to create sites using templates with the ability to publish and embed documents, calendars, images, videos, and more. Site users can work together to add files from other Google applications, such as Google Docs, Google Calendar, YouTube, and other sources. The author of the site may invite other users to collaborate on it and control their access to the materials.

In addition to the described services, which can be used by the teacher for the organization of educational and cognitive activities of students, other services deserve attention. Briefly will describe these services and give some examples of their use in the learning process.

Services for visualization of information

1. Knowledge Mapping Services (Coggle, Bubbl.us, MindMeister, etc.). These resources allow you to visualize the process of thinking in the form of schema, so-called mind maps. The use of mind maps in the learning process encourages students to generate their own ideas and analyze them, co-ordination of a joint decision.

2. Services for creating tag clouds (Wordle, WordArt, etc.). These services allow you to visually submit a list of categories or tags. Usually their used to describe keywords (tags) on websites or to present unformatted text.

3. Services for the creation of virtual interactive boards (walls) (Popplet; Padlet; LinoIt and others). The use of interactive posters created with the use of these services allows the teacher to organize an independent and extra- curriculum students' educational work efficiently and securely. On the placard, the teacher will be able to collect qualitative information resources on the topic being studied, place assignments to the classroom (lectures, seminars, practical work). Students may be editors of interactive online posters and modify their elements at their discretion. Each created poster is assigned a unique web address. Links to the created resource can be shared by sending them by e-mail, as well as add social bookmarking services, social networks, and the poster itself to integrate into a presentation, a wiki-project, a blog or a site.

Resources for creating interactive game exercises

It should be noted that modern innovation in the educational process involves the use of interactive technologies, in particular interactive tasks or exercises, so the next group has resources for creating interactive game exercises. Among these resources, the constructor of Interactive Tasks LearningApps deserves attention. The basic idea of interactive tasks is that students can check and consolidate their knowledge in the form of a game, which contributes to the formation of their cognitive interest in a particular discipline. The site presents a large collection of ready-made exercises, sorted by categories of educational subjects, topics, levels. The use of them involves a set of methodical techniques that combine clearness, the practical development of computer skills, the teacher's and student's dialogue in the learning process.

LearningApps.org, in addition to the use of ready-made exercises, provides an opportunity to develop their own interactive tasks. To create their exercises are used crosswords, puzzles, test tasks, quizzes, tables, didactic games, classifications, video files. In addition, using text, sound, video, animation, allowing involve various channels of perception students.

The service has the opportunity to create its own classes, add users (students) there, and then track the implementation of their proposed tasks and create one or another of their interactive exercises. The use of this service allows the learning process to be interactive, more mobile, differentiated, and individual.

The use of cloud services provides significant opportunities for creating various learning and cognitive situations in which future teachers can master and develop skills such as: recognizing and using different types of cloud resources; communicate effectively and collaborate effectively; create quality educational products, etc.

After analyzing the capabilities of various cloud services, we focused on Google Docs, Google Sheets, Google Presentations, Google Site, LearningApps.org, Padlet, Word Art. Their choice is justified by such important advantages in the organization of collective educational-cognitive activity as free of charge, intuitive interface, ease of use.

4. Collective educational and cognitive activity of student during the creation and application of sites by web-quest technology.

Our experience with the implementation of preparing students for future professional activities suggests that their involvement in the working, creation and use websites in classes, created by technology web-quest allows not only they themselves be members of collective educational and cognitive activities, but also learn to the methods of its organizations during the lessons. Space, organized with the use of cloud services, can be used to implement the collective educational and cognitive activities of students. You can design different scenarios for its organization. Let's consider some of them based on the use of cloud services that allow you to create mental maps, virtual interactive whiteboards, word clouds, interactive exercises, or to work in Google services.

Typical modes of work in teams can be:

1) collective work, that is, the whole group works on the majority or all tasks or projects;

2) work in subgroups;

3) the individual work of each member of the team, and then a group comparison and discussion of the results. It is important to note that the implementation of all three modes of work in the classroom is most effective than the selection and application of only one of them.

Let's show it on examples.

1. Organization of joint work of students on the creation of a web site technology web-quest for classes on various topics of informatics.

The analysis of scientific sources made it possible to conclude that scientists understand the essence of the web-quest in different ways. We will use the definition of A. Fedorov, A. Novikov, V. Kolesnichenko, and I. Karun, who, under the web-quest, understand “an educational site devoted to the independent research work of students (usually in groups) on a certain topic, with hyperlinks to various web-pages” [7].

Future teachers should realize that during the organization and conducting of classes using web quests, it is necessary to take into account the fact that these are team competitions aimed at solving pre-prepared tasks for a limited time. At the same time, from the very beginning, they have to explain in detail to those who are studying the rules of passing each of the proposed steps of the web-quest, to draw their attention to the need for careful listening to the instructions for their implementation. Before each competition it is mandatory to provide instructions on the use of this or that service, and, if necessary, to draw the attention of participants to the fact that when performing an interactive exercise during the summing up not only takes into account the correct answer, but also the speed answer.

Let's list the stages of collaborative work of students during the development and creation of web-sites, based on technology web-quest. Namely: the definition of the topic and the purpose of its creation; search and processing of necessary information; Defining a list of stages and tasks for organizing various types of student activity on each of them (developing a structure and defining the content of filling the future site); analysis of the possibilities of the Internet services for creating exercises or didactic materials; development and creation of certain didactic materials; creating a site for a defined structure; filling it with content.

We will demonstrate the implementation of these phases on an example the site "Travel to Disneylandes of the World" (<https://sites.google.com/site/vebkvestpodorozdisnejlendami>), created by the future teachers, designed to master their group mates with the technique of creating interactive presentations with triggers.



Fig. 2. A map of knowledge on the planning of the structure and content of the future site

After opening the Google Docs for editing, students can independently online to determine the content of the theoretical material and tasks for practical implementation. The teacher, if necessary, corrected the results of students' work. An example of a snippet of posting such a Google Doc is shown in Figure 3.

№ з/п
 Назва сторінки | Зміст сторінки | На яку сторінку здійснюється перехід | Хто відповідає за створення |

 <tbody>
 <tr>
 1. | Головна сторінка | Веб-квест "Подорож Диснейлендами світу" (Створення презентацій з триггерами) Опис проекту Проект призначений для учнів 8-11-х класів, студентів коледжів, ліцеїв, вищих навчальних закладів I-II рівня акредитації, які бажають дізнатись щось нове про можливості, які надає програма Power Point для створення інтерактивних презентацій. Мета проекту Розглянути приклади презентацій, створених у програмі PowerPoint; дізнатись про її інтерактивні можливості; створити власні інтерактивні презентації. Завдання проекту Навчитись створювати інтерактивні презентації; тестувати й оцінювати їх. Термін реалізації 2 тижня. Представлення результатів роботи Демонстрація створених презентацій; проведення тестування користувачами. | Анкет а учасників (відкривається у новому вікні) | |

Fig.3. Screenshot of the fragment of filling the Google Document for a joint discussion about the structure and content of the future site (https://u.to/euzUFA).

Fourth stage. Analysis of the possibilities of the Internet services for creating exercises or didactic materials.

After determining the forms of works on "Creating and demonstration computer presentations", students learned about the services LearningApps , Forms Google and interactive whiteboards Padlet or LinoIt. Then they developed texts of tasks.

The fifth stage. Develop and create defined didactic materials.

Below are examples of tasks created for students to perform in groups (see Fig. 4); Forms for assessment (see Fig. 5) or the results of joint activities (see Fig. 6).

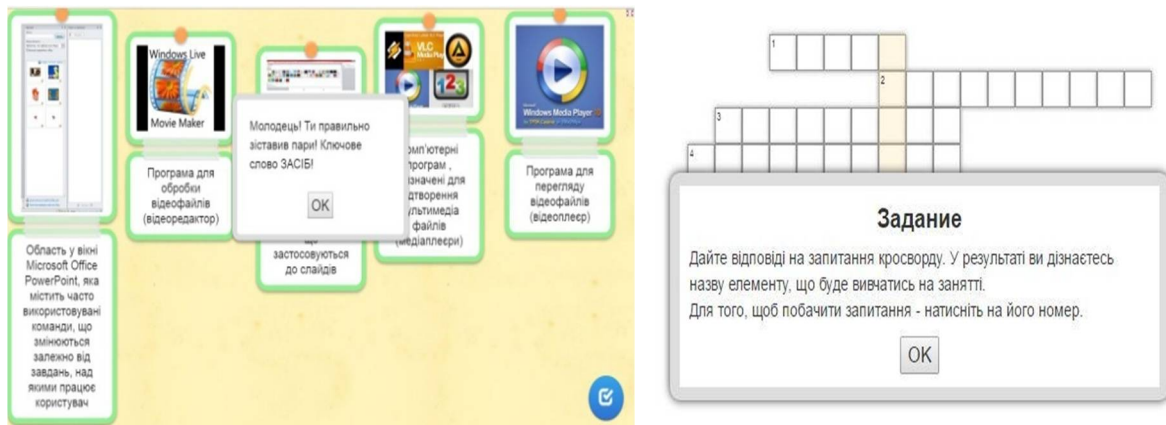


Fig.4. Screenshot of tasks created in the LearningApps service for students to complete classes in groups

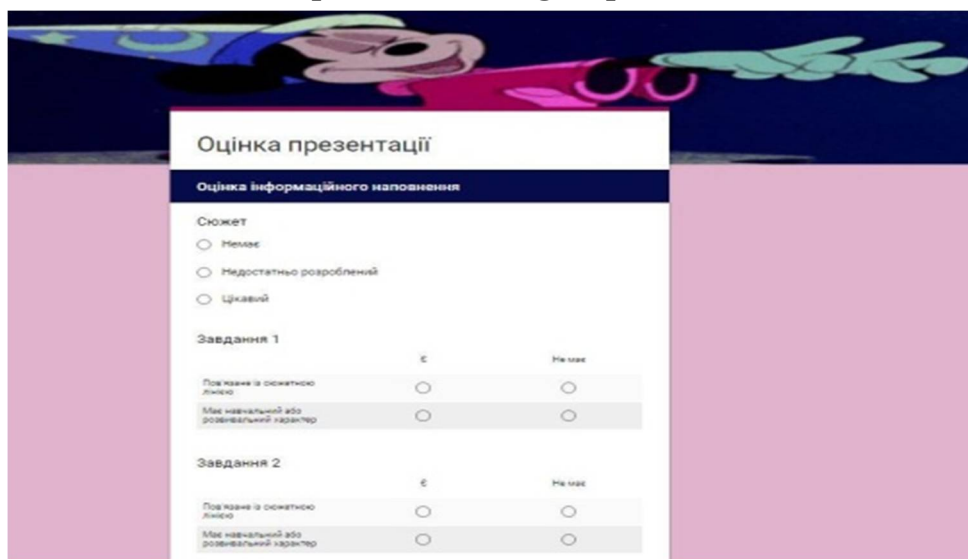


Fig.5. Screenshot of a form fragment for students to evaluate interactive presentations

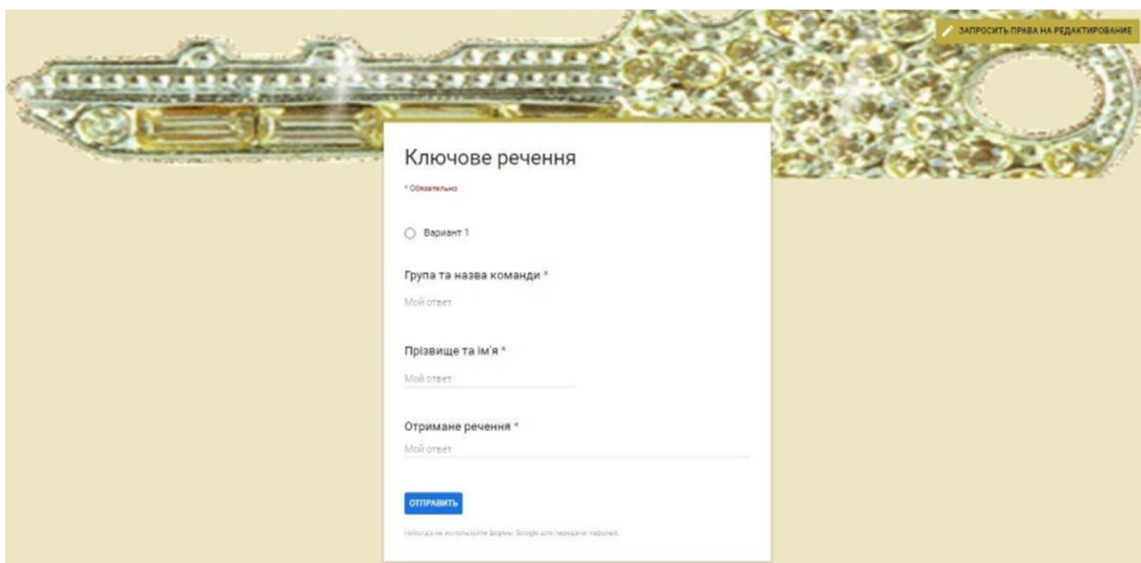


Fig. 6. Screenshot of the form to provide students with the results of the joint implementation of the proposed tasks

The sixth stage. Creating a site of defined structure (Figure 7).

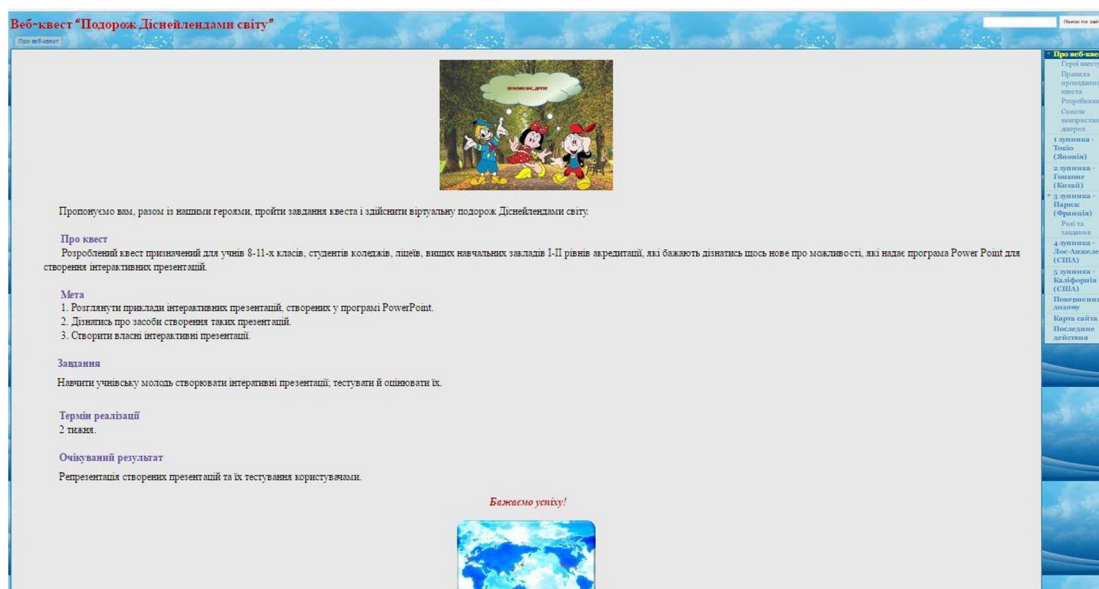


Fig. 7. Screenshot of the first page created by the students on the web-quest technology

2. Mastering by future teachers the techniques of organization collective educational and cognitive activity of students in the lesson.

The created site was used by students for conducting classes with group members in studying this topic. At the beginning of the lesson, students chose the heroes of the web-quest for further grouping by lot of images. Then they came up with the structure of the site, the rules of the passage of the quest, the heroes and their functions in the quest. After that, they were offered to familiarize themselves with examples of various types of interactive presentations, criteria for their evaluation and, working together in pairs, to evaluate these presentations by filling out an evaluation form. In order to find out the topic of work, was offered to future teachers to go to the next station-page, join the groups and complete the tasks created in the LearningApps service (see Fig. 4); fill in and send the form with the input of the found word-tips (see Fig. 6). Then they may start practical tasks offered to next station-page. Students were given one week to complete their work. They created presentations and placed it on the interactive whiteboard "Vernissage of presentations" (see Fig. 8).

On the next lesson, the students had to representative their work in groups and make collective discussion and evaluation. This methodical technique allowed to organize the reflection of the student's activity; determine whether the goal of learning was achieved; discuss the benefits and disadvantages of such a organization of learning. The guiding principles on which were based the methodical technique of organizing the collective educational and cognitive activity of future teachers during training of students to use of cloud services in the process of the creation and application of sites by web-quest technology for classes, were: the principle of novelty, the principle problematic, visibility, unity individual and group learning, strength in mastery of learning outcomes, the principle of gradual modeling of the content and conditions of professional activity of specialists [11, p. 171].

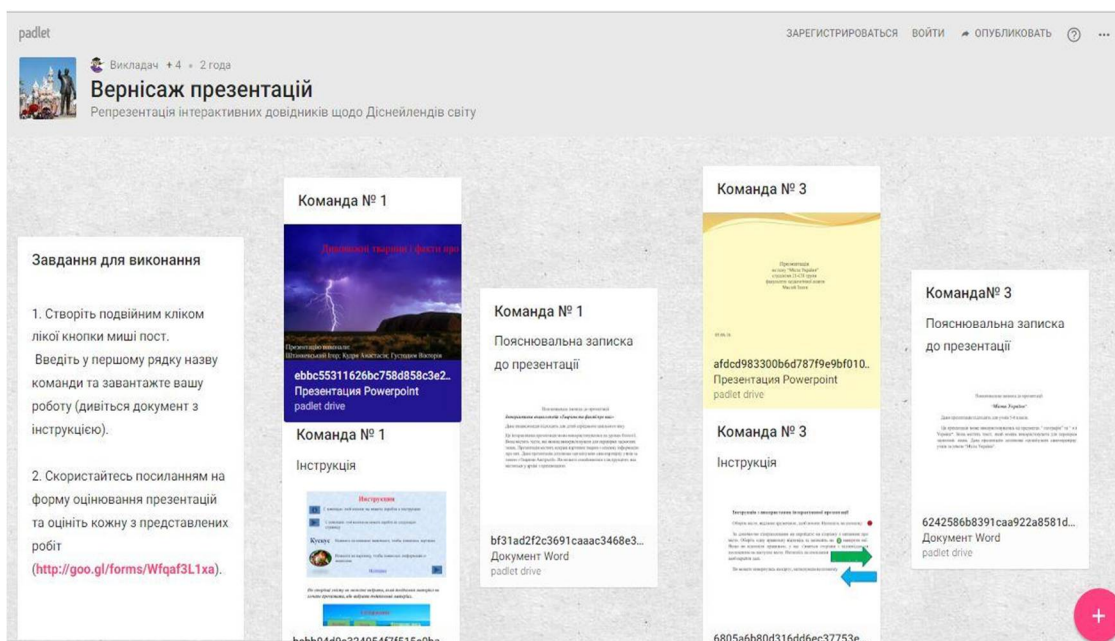


Fig. 8. Screenshot of the electronic board – a platform for presentation of students' presentations in teams

Among the organizational forms of activity of student, one can distinguish the following: individual work and work in small groups (3-4 persons), which contributed to the development of skills in working together. It should also be noted that independent work of students played an important role in their learning process.

Conclusions.

Consequently, the use of the above-mentioned Internet technologies ensures effective collective work of students, which is not limited to the spatial and temporal framework of the organization of cooperation and educational interaction. Based on the analysis of scientific works and our own pedagogical experience, we have found that the use of cloud services in the process of organizing the collective educational and cognitive activity of future teachers has a significant didactic potential that can be successfully implemented in higher education institutions. Cloud technologies change the student's role from informational consumer to the co-creator of "collective knowledge". They have the opportunity to execute collaborative projects, discuss them, publish results on the Internet, to further analyze create pivot tables and charts, as well as conduct test control and self-control of learning achievements. Using cloud services can increase the students' interest and willingness to study. With their help, they can perform the proposed tasks jointly by the group. The application of cloud technologies provides significant opportunities for creating different educational and cognitive situations in which students master certain skills. In addition, make the formation of a new learning culture for students, raising their level of cognitive, research and creative activities. In the process of using cloud services, future teachers develop communication skills, the ability to effectively interact with other people, information to exchange, coordinated collaboration in the process of solving collective learning tasks.

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**PROBLEM SPACE OF MODERN SOCIETY: PHILOSOPHICAL-
COMMUNICATIVE AND PEDAGOGICAL INTERPRETATIONS**

Collective monograph

Part II

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