ISBN 978-617-7369-84-3

ВИДАВНИЦТВО
«МОНОЛИТ»

DIGITAL EDUCATIONAL ENVIRONMENT IN INSTITUTIONS OF HIGHER EDUCATION

Ministry of Foreign Affairs of the Czech Republic

DIGITAL EDUCATIONAL ENVIRONMENT IN INSTITUTIONS OF HIGHER EDUCATION

DIGITAL EDUCATIONAL ENVIRONMENT IN INSTITUTIONS OF HIGHER EDUCATION

Monograph

Dnipro
MONOLIT
2023

UDC 004:378.147

Approved by the Academic Council
of Dnipro State Agrarian and Economic University
(protocol No. 6 dated 30.03.2023)

R e c e n z e n t s:

N. Vasilieva – Doctor of Science, Professor, Professor of the Department of Informational Technology and Communacation at Dnipro State Agrarian and Economic University;

V. Bozhanova – Doctor of Science, Professor, Professor of the Department of Management, Project Management and Lgistic at Prydniprovska State Academy of Civil Engineering and Architecture;

M. Lytvyn – Candidate of Sciences, Accosiated Professor, Accosiated Professor of the Department of Economic Theory and International Economic Relations, Head of Resource Center for Sustainable Development at Dnipro University of Technology.

Author's group:

Bondarchuk N. (introduction, 1.3), Dubrova N. (4.1), Bovkunova O. (1.4), Chernetska O. (4.3), Hubaryk O. (4.2), Karamushka A. (2.1), Krushelnytska T. (3.3), Minkovska A. (2.3), Nuzhna S. (1.2), Odnoshevna O. (2.2), Shramko I. (3.1), Sydorenko S. (3.2), Tsybulko Yu. (1.1)

Digital educational environment in institutions of higher education [monograph] / N. Bondarchuk, N. Dubrova, O. Bovkunova and others. – Dnipro: Monolit, 2023. – 272 p.

The monograph presents modern educational technologies that can be used in the educational process of a higher educational institution. The monograph is aimed mainly at students of various study specialties, teachers. The monograph collects the opinions of scientists and teachers regarding the possible use of information technologies in the learning process, considers the main services and tools for evaluating written works, conducting an oral survey, and organizing online testing.

ISBN 978-617-7369-84-3

CONTENTS

1.3. Basics of the project approach in the educational process with the help of educational technologies

Education and higher education, in particular, are the background for individual growth and social progress, which contributes to economic development, increasing the level and quality of life of people. As a result of the transformation of education, the role of the teaching staff is changing. Antonio dos Reis points out that teachers must update their technology and methodological skills according to the needs of the students' profile. For this purpose, continuous training is necessary in such areas as:

– online training using virtual classrooms, video conference and virtual group work;

– use of tools for conducting pedagogical games, use of interactive synchronous and asynchronous tools;

– use of interactive synchronous and asynchronous means;

– the ability to use online platforms for content management (LMS) and other supporting interactive animations, such as 3D and MUVES, etc.

Therefore, a modern teacher must not only be able to choose and use digital resources for teaching students, but also organize cooperation and communication between all participants of the educational process, be a facilitator and assistant for students, understand and take into account their needs and peculiarities of the educational process, cognitive learning styles, new services and tools for effective communication and cooperation, take into account modern educational trends in their activities. Today, no one doubts that educational institutions should teach practical skills and develop key competencies of the 21st century in students. That is, institutions of higher education face the task of finding effective tools for their development. And one of these tools is the project approach.

Currently, the project approach to education, the use of the project method in education is quite relevant. The project method in education is an innovative learning technology in which students develop competencies in the process of purposeful, planned and executed interconnected activities, which are implemented with constant monitoring and culminate in a real practical result – an educational product.

Project-based learning is gaining more and more momentum, as it is a very effective and relevant approach to teaching and learning. Numerous studies indicate that after its successful implementation in students, the motivation to study improves and the level of achievement increases. Also, this form of work helps to partially implement the program of early career guidance of students, so that in the future graduates consciously choose a profession and an educational institution [8].

According to the definition of the Buck Institute for Education, project-based learning is a learning method in which students acquire the necessary knowledge and skills by spending some time investigating and responding to real, interesting and complex questions.

According to researchers (Barron & Darling-Hammond, 2008; Thomas, 2000), project-based learning involves the following:

• students apply knowledge and skills to solve realistic problems in the real world;

• the student's level of responsibility for the completed work increases;

• teachers perform the roles of trainers and research facilitators, conduct reflections;

• students often work in pairs or groups.

This training format involves the involvement of students in the systematization and acquisition of knowledge, creating their own products. It develops the skills of critical thinking, collaboration, communication, reasoning, synthesis and resilience in the conditions of limited time and a defined goal.

Since learning is a social activity that takes place within student groups, culture and past experiences, through project-based learning students have the opportunity to use not only knowledge from academic disciplines, but also learn to negotiate, make joint decisions, take responsibility according to the role in the educational team and interpret the results of their activities together [3].

It also gives teachers the opportunity to see students in a new light, to help them develop their innate abilities in a new way that is sometimes not possible in the traditional lesson system. In addition, project-based learning is often realized through interdisciplinary connections that go beyond the curriculum of one particular subject. This greatly expands the teacher's capabilities and promotes creativity, and students often have tasks in the

process of solving which they acquire practical skills that are not foreseen in the theoretical part of the educational process.

That is, learning takes place naturally, unobtrusively, because the goal is not to learn, but to complete the task, to get a result that really motivates the students.

Advantages of project-based learning

For students:

• the traditional classroom turns into an open learning space in which students move at their own pace;

• in the process of project implementation, there is a need for self-education and self-improvement;

• learning based on memorization and repetition moves to integration, discovery and presentation of acquired knowledge;

• students have the opportunity to go through all stages of "production": from the idea, creation of a model of the future product to its implementation.

For teachers:

• gives teachers the opportunity to build a positive history of relations with students under new conditions;

• choose roles for students, emphasizing their individuality and natural talents.

The strength of projects is that it is a method of combining:

• theory with practice, which is based on students' creative searches;

• education and upbringing with the student's life and environment. In the project activity, the "teacher-student" relationship changes fundamentally.

Knowing his subject well, the teacher should:

• to be competent in other fields of science, to see their points of contact;

• know your students well, their capabilities, interests, desires;

• understand your students;

• take into account their capabilities and interests;

• be communicative, tolerant, creative;

• perfectly master pedagogical psychology, acting skills.

The teacher acts as a consultant:

• helps students in finding sources of information;

• he himself is a source of information;

• coordinates the process of work on the project;

• supports and encourages students;

• supports continuous movement of students in working on the project;
• helps the student in everything, without doing the work for him.

Of course, against the background of obvious advantages, there is also a certain danger of using project-based learning: there is a risk of not fulfilling the educational goal and not achieving results. But this can be avoided if the process is rationally planned.

Projects can be research, creative, game, informational, practical-oriented projects.

Research projects are fully subordinated to the logic of research and require:

• a well-considered structure;
• a defined goal;
• proving its relevance;
• social significance;
• definition of the subject or object of research;
• thoughtfulness of tasks, methods, research methodology;
• putting forward hypotheses, assumptions about solving the problem;
• experimental processing of results.

Structure of the research project:

• definition of the research topic;
• argumentation of its relevance;
• definition of subject and object, tasks and methods;
• determination of research methodology;
• proposing hypotheses and outlining ways to solve the problem.

Creative projects do not have:

• the detailed structure of the joint activity of the participants, it develops subject to the interests of the project participants, the final result, the logic of joint activity adopted by the group;

• a group of participants united by interests (the project participants agree on the planned results and their form in advance presentation – handwritten journal, collective collage, video film, holiday, etc.).

Game projects:

• the structure of such projects remains open until their end;

• participants take on defined roles determined by the nature and content of the project (these can be both literary personalities and real-life personalities);

• their social and business relationships are simulated, which can be complicated by fictional situations;

• work results can be determined at the beginning of the project or before its completion;

• there is a high degree of creativity, but the dominant type of activity is still play.

Information projects are aimed at:

• collecting information about any object, phenomenon;

• familiarization of project participants with this information, its analysis, summarization of facts.

They need:

• a well-thought-out structure;

• possibilities of systematic correction during the work on the project.

The structure of the information project:

• the purpose of the project, its relevance, methods of obtaining (literary sources, mass media, databases, interviews, questionnaires) and information processing (analysis, generalization, comparison with known facts, reasoned conclusions);

• result (abstract, article, report, video);

• presentation (publication, in particular in an electronic network, discussion in a teleconference).

Practically oriented projects:

• the result of the activity is clearly defined from the very beginning;

• oriented to the social interests of the participants (document, program, recommendations, draft law, dictionary);

• require a well-thought-out structure, even drafting a scenario, taking into account the activities of all its participants and defining the functions of each;

• need to organize coordination work in the form of step-by-step discussions and presentations of the obtained results and possible means of their implementation.

Stages of project implementation.

Preparatory (organizational):

1. Formulation of the problem. Successful projects are those whose activities are focused on solving specific, narrow problems.

Criteria for proper formulation of the problem:

• briefly describe the situation that needs changes;
• outline the circle of those it concerns;
• provide quantitative information characterizing the problem;
• define needs and goals.

2. Defining the topic and purpose of the project (for what?).

When choosing a topic, the consultant should consider:

• importance and urgency of the problem;
• possible interest of project participants;
• validity (scientific, legal, ethical, etc.) of the practical solution. The name of the project contains the general name of the problem.

3. Formulation of project tasks. The task of the project is a series of achievements aimed at solving existing problems. When formulating project tasks, it is important to remember that the project task is not a process, but an expected result. Requirements for formulating project tasks:

• specificity – it should be clear what and how will change as a result of the activity;
• measurability – the results can be measured, compared with the previous state;
• determination – clearly defined target groups, scope of action, spheres of activity;
• realism – expected changes should not be hypothetical, but real, possible;
• certainty in time – the term of activity in the project and its stages are clearly defined.

4. Activity – creation of initiative groups intended for: action planning:

• identification of sources of information;
• determination of information processing and analysis methods;
• formation of ideas about the desired results (report form);
• establishment of procedures and criteria for evaluation of process results;
• distribution of tasks (responsibilities) between team members.

5. Study of the project topic:

• collection of necessary information (observation, work with literature, questionnaire, experiment);
• solving intermediate tasks;
• observation of objects;

• carrying out experiments;
• survey;
• work with literature.

6. Results:
• analysis of collected information;
• formulation of conclusions.

Submission or report:
• generalization and classification of collected materials;
• production of illustrative material (photos, graphics, drawings, diagrams);
• preparation of informative presentation materials;
• preparing students for the performance;
• presentation (computer, visual – drawing, photo, diagrams, tables).

7. Project evaluation criteria:

Collective discussion – summary and evaluation of the results obtained according to the established criteria:
• significance and relevance of the problem;
• correctness of research and data processing methods;
• activity of each participant;
• collective nature of decisions;
• nature of communication, mutual assistance;
• attraction of knowledge from other subjects;
• ability to argue one's conclusions;
• aesthetics of results design;
• ability to answer opponents' questions;
• brevity and argumentation of each conclusion.

Applying the project approach, it is necessary to use interactive forms of conducting classes with students:

❖ Lectures (lecture-conversation, lecture-discussion, lecture with analysis of specific situations, lecture with pre-planned mistakes, lecture-press conference);
❖ Creative tasks;
❖ Classes with training elements;
❖ Educational games (role-playing games, web-quests, simulations, business games and educational games);
❖ Project development (project method);

❖ Discussion and problem solving (brainstorming, decision tree, case analysis, negotiations and mediation, etc.);

❖ Method of cases, etc.

The success of using the project approach in the educational process depends on many factors: the attitude of management and teachers, the determination of real or desired needs in using such an approach, the support of teachers and authors.

What educational technologies can be used in project learning.

One of the promising directions of formation of information and communication competences is the technology of educational web quests (WebQuests).

An educational web quest is an applied web technology dedicated to a certain topic, consisting of several sections connected by a single storyline, in particular, saturated with links to other Internet resources. Such web quests are being developed for the maximum integration of the Internet in various educational subjects at different levels of learning in the educational process. They cover a separate problem, subject, topic, and may be interdisciplinary.

The developers of the Web Quest as an educational task are Bernie Dodge, a professor of educational technologies at the University of San Diego (USA). A web quest is a new means of using technology to create a learner-oriented activity that engages in the learning process and develops critical thinking [2].

Educators all over the world use WebQuest as one of the tools to successfully use the Internet in the classroom. It was most popular in Brazil, Spain, China, Australia, Holland and America.

The web quest is aimed at developing analytical and creative thinking skills; a teacher who creates a web quest must have a high level of subject, methodical and information communication competence.

The topics of webquests can be very diverse, the problem tasks can differ in degree of complexity. There are two types of web quests: for short-term (goal: deepening knowledge and their integration, designed for one to three classes) and long-term work (goal: deepening and transforming the knowledge of the acquirers, designed for a long term – maybe for a semester or an academic year).

A special feature of educational web quests is that some or all of the information for individual or group work for participants is located on

different websites. In addition, the result of working with the Webquest is the publication of participating works in the form of Web pages and Web sites (locally or on the Internet) [5].

A webquest is a web project in which all the materials that participants work with come from the Internet. The design of the Web Quest involves rational planning of students' time, focused not on information search, but on its use. The web quest allows: searching for information on the Internet, instructing the student teacher, developing the thinking of the participants at the stage of analysis, generalization and evaluation of information, developing the computer skills of the participants and increasing their vocabulary, encouraging students who study independently of the teacher.

In the literature, there are also two options for understanding web quests:

1. Web quest of the "project method" type – the main stages of the project method are followed: all participants are united in groups (researchers, designers, writers, etc.); each group receives its problem task, as well as a set of web resources with which they will work; each group must create a new web product (website, blog, virtual dictionary, etc.) by completing the task. The main emphasis in this type of web quest: solving a problem/task by analyzing web resources and creating a new product.

2. "Competition" type web quest – the teacher creates an interesting plot; students (individually or collectively, according to the plot) complete tasks (searching for information, revealing a secret, etc.); all tasks are performed to obtain a goal (guess the password, find treasures, etc.). The main emphasis in this type of web quest: finding answers by analyzing Internet sources.

In the process of project activity, a specialist is formed who knows how to act not only according to the model, but also independently receives the necessary information from as many sources as possible, being able to analyze it, put forward hypotheses, build models, experiment and draw conclusions, make decisions in difficult situations [5] .

How does the Web Quest work? It is necessary to divide the participants into groups. Before making the distribution, all participants in the process should familiarize themselves with the general information on the topic under study. Thus, participants are loaded into the problem of the previous project.

The teacher selects Internet resources and classifies them in such a way that each group gets acquainted with only one problematic aspect of

the topic. After studying, discussing and fully understanding the specific problem in each primary group, the applicants are regrouped in such a way that the newly formed groups have one representative from each primary group.

During the discussion, all participants learn from each other all aspects of the discussed problem. During such a discussion, the participants must express their own opinion, draw conclusions, predict the possible further course of action (if it is accepted).

During the solution of the web quest through the study of the material and its discussion, the participants must answer one general question of a debatable nature. A web quest is a script for organizing project activities.

It should be noted that the Web Quest is not a simple search for information on the Internet. Working on the task, students collect, analyze, summarize information, draw conclusions, form and defend their own point of view. The creative process of transforming information from various sources contributes to the development of thinking and provides a basis for thorough knowledge.

So, the Web Quest is a class format focused on the development of cognitive and research activities of students, in which the main part of information is obtained through Internet resources.

The advantage of Web quests is the use of active learning methods. The web quest can be designed for both group and individual work. With the help of web quest technology, interest in the topic being studied increases, motivation increases.

Some additions: Webquests are best suited for working in small groups, but there are also webquests designed for individual students. Additional motivation for completing the Web Quest can be created by inviting participants to choose roles (eg, scientist, journalist, detective, architect, etc.) and act accordingly.

The peculiarity of educational web quests is that part or all of the information for students' independent or group work with it is located on different websites, and students focus on the information itself, and not on its search. Thus, the web quest supports learning at the level of thinking, analysis, synthesis and evaluation. The goal of developing web quest projects is to maximize the activation of students' educational activities in various subjects at different levels of learning in the educational process, using

Internet resources, the use of which is in the students' sphere of interest. They can cover a single problem, subject, topic, or learning module.

In the educational process, the web quest is used either as a method that lasts approximately 20 minutes, or as a form of organization of student learning. The web quest allows you to develop active learning in lessons, promotes the development of thinking, helps to overcome problems and difficulties, namely: solve, untangle, invent, be able to apply your knowledge in practice in non-standard situations, i.e. actualize knowledge, teaches to think logically, develops interactive abilities .

Web quest technology can increase student motivation due to the following characteristics**. Multimedia** can significantly improve the psycho-emotional mood in education. So, by implementing the motivational component, you can introduce various game forms into the quest. Curiosity plus illustrativeness colors the material in a special way, makes the process of acquiring knowledge more attractive, gives food to the imagination, promotes the formation of positive emotions, and gives confidence in success.

Modality, that is, the use of as many sensory channels of information perception as possible. Multimedia resources are especially valuable here. Visualization of the studied material creates conditions for the development of memory and language, makes knowledge open, has great educational power, and is a good diagnostic tool. Illustrations are especially necessary when the objects are not accessible to direct observation, and the word of the teacher is insufficient to give an idea of the object or phenomenon being studied. Word image. With the help of the quest, you can demonstrate both dynamic processes and static images in the shortest possible time. This is especially important when developing the ability to compare, compare objects and phenomena, summarize facts, highlight the main points, and reveal associative connections [3].

Structured presentation of educational material. With regard to technology, a web quest is an extensive structure of information presentation, implemented with the help of hyperlinks, which facilitates the organization of clear logical connections, promotes a holistic understanding of the researched issue, allows you to quickly adjust the scope of the content of the researched topic, provides students with the opportunity to independently build an individual learning trajectory .

The research nature of the technology allows to intensify the research activity of the teacher and students. Access to the Internet provides enormous opportunities for choosing the source of information. Its search and processing can be considered as an interactive dialogic interaction of students with the computer, in which real communication goals are pursued (requesting and receiving information), in which the computer acts as a communication partner. When working with large amounts of information, students develop critical thinking skills and abilities, the ability to make a choice and bear responsibility for it, evaluate the effectiveness of information search, and correctly determine the amount of information offered. Thus, the formation of informational and communicative competences takes place.

Visualization of work results and evaluation of work performed. The step-by-step results of the work, displayed on the screen, make the evaluation of the students' activity visible, and the reflection conscious. When using a web quest as a method of stimulating and motivating the educational and cognitive activity of students by means of game activities, schoolchildren look for original solutions. During the game, teams solve logical tasks by using hints and finding solutions in non-standard situations. After completing the next task, teams move on to the next one. The team that completed the task faster than others wins. Additional motivation when completing a web quest can be created by **offering students to choose roles** (for example, a teacher, a doctor, a programmer, a builder, etc.) and act on them: for example, if the teacher offered the role of a secretary of a well-known company, then this character can send a letter to another participant (who plays the role of the director of this firm, for example) about certain problems and attempts to solve them.

A key section of any web quest is a detailed scale of evaluation criteria, which contributes to the development of the activation of schoolchildren. After all, knowing that they can get a good grade for a certain completed task, it begins to motivate them to study academic subjects. Based on the evaluation criteria scale, project participants evaluate themselves and their teammates. The teacher uses the same criteria. It is recommended to use from 4 to 8 criteria, which may include evaluation of: research and creative work, originality of work, skills of working in microgroups, oral presentation, multimedia presentation, written text, etc. [16].

Creating a web quest on Blogger.com. Blogger is a web-based blogging service that allows anyone to start a blog without programming or worrying about installing and configuring software [5].

The main advantage of Blogger is the ability to change the design of the blog, starting with widgets (including third-party ones) and ending with templates. By default, blogs are created under the blogspot.com domain, but there are also regional domains and the option to link your domain to a Blogger blog. Work plan for creating a blog:

1. Concept development.
2. Creating an account.
3. Creating a blog template, its design.
4. Creating posts.
5. Creation of new pages.
6. Work with gadgets.
7. Editing the blog.
8. Involvement of authors in blogging.

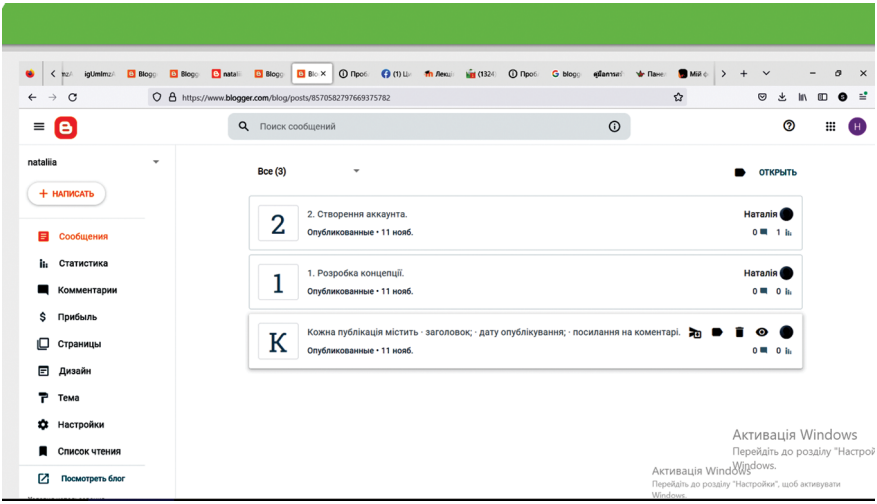

Fig. 1.5. Blogger desktop

Blogger allows you to create up to twenty pages in addition to the Home page. Each page can be dedicated to one specific topic, daily messages will still be posted on the Main Page.

On these pages, you can also create links to other Web pages, insert photos, videos. Algorithm for creating a Blog Quest:

1. Create a Google account (if you don't have one yet).
2. Activate the Blogger service and create a blog.
3. Determine the structure of the blog quest:

– introduction;
– tasks;
– roles;
– evaluation criteria;
– links to articles and other sources on the Internet;
– posts (records) containing material according to the topic of the quest.

4. Create and name blog pages according to structural elements.
5. Configure the list of pages.
6. Think over the content and content of each page.
7. Fill in and design the pages.
8. Test the created Blog Quest.

Trello is a cloud-based project management software for small groups developed by Fog Creek Software. Trello uses a project management paradigm known as kanban, a method originally popularized by Toyota in the 1980s for supply chain management. trello.com [6]

Trello is a visual tool that allows your team to manage projects, workflows, and tasks of all types. Add files, task lists, or even automation features – and customize everything to make it convenient for the team to work.

The main advantages that allowed Trello to achieve popularity are:

• simple interface;
• almost unlimited free access;
• ease of use and the ability to integrate with other popular tools for online work.

To invite a person to a team or assign responsibility for a task, you just need to send him a link. The registration procedure is very simple and fast. Trello uses simplified Markdown text markup. You can automate processes using Zapier. Trello supports integration with a host of popular web services, including: Slack, Evernote, Github, Google Drive, Dropbox, OneDrive, MailChimp, Twitter, and many others [6].

As already mentioned, project management in Trello is based on the Japanese principle of organizing production and supply "Kanban". This

principle was originally developed and introduced into production by Toyota. It serves to ensure that all assigned tasks are completed on time. It is implemented using special cards with tasks that are filled out and posted on a board divided into lists. Tasks move from list to list as they are completed.

Structure.

The three elements that make up Trello's project organization structure are:

- board,
- list,
- card.

The board is one working screen, which is logically divided into lists.

Lists, in turn, are vertical rows for storing cards. Cards are special forms for describing tasks. They can be moved both within the same list, and freely moved between lists or boards. Lists can also be moved. For any task, you can assign people responsible for its implementation. Trello offers many useful options for styling, customizing, and managing your functional items.

Personal planner. Suitable for maintaining a personal or work to-do list, tracking habits, plans or productivity for the day, week or year. Templates are available to users: use them ready-made or customize them for yourself.

To-do list. Trello boards are used as a diary. Organize cases into columns, for example: work, family, personal. Set due dates and color labels that indicate the priority of the task.

Event planning. In this case, Trello distributes tasks and controls how managers, marketers, advertisers and other employees work. Create a board, specify the performers and their tasks, set deadlines.

Content plan. Schedule publications for the week, month, quarter, or year. Use columns of mixed type: by type of task – "Writing", "Editing", "Illustrations" and by status – "Ready for publication", "Published". Color labels indicate the type of content – article, post, video review, podcast.

Bug tracker. It's a board with columns for Inbox, Non-Urgent Bugs, Urgent Bugs, In Progress, Blocking Bugs, Testing, and Fixed.

Cards As you already understood, the work is built around special cards, each of which can be either a simple task description or a complex

document with lists, checklists, attachments, deadlines, labels, responsible persons, and so on.

What can be done with a card in Trello:

• Rename, fill in description and edit text with simple Markdown tags.

• Assign tags, participants, due date, add file or checklist.

• Add comments, emoticons, attachments, other tasks, notify selected members (add "@" symbol in front of nickname).

• Change the position of the block in the list, move it across lists and other boards;

• Copy, track changes, archive.

• Print, export to JSON, share a link to a card or its postal address (letters will appear as comments).

• Delete permanently.

In addition, at the very bottom of each task there is a detailed log: who, when and what actions were performed. Here's what a regular card in Trello looks like in Russian (by the way, the presence of a Russian version is a separate big plus).

Lists and boards

Lists can also be copied, moved and archived. The menu with boards in Trello can be made fixed, and the boards themselves can be added to Favorites and sorted. There are three types of boards with different levels of access:

• private (available only by personal invitation of the board owner);

• team (available to all team members);

• public (may be available to everyone).

Closed boards and unnecessary lists with cards are stored in a special archive. From there, they can be returned back or permanently deleted. You can create an unlimited number of tasks, boards, and lists, and add any number of participants.

One of the serious competitive advantages of Trello over other project management systems is a large, constantly updated list of improvements (Power-Ups), divided into categories. These are extensions and integrations with other popular services, applications, cloud storages, etc. The only downside is that the free version of Trello allows you to enable a limited number of enhancements per board. However, you can switch between them as needed. You can find applications for integration before "Stickers" in the drop-down menu on the right.

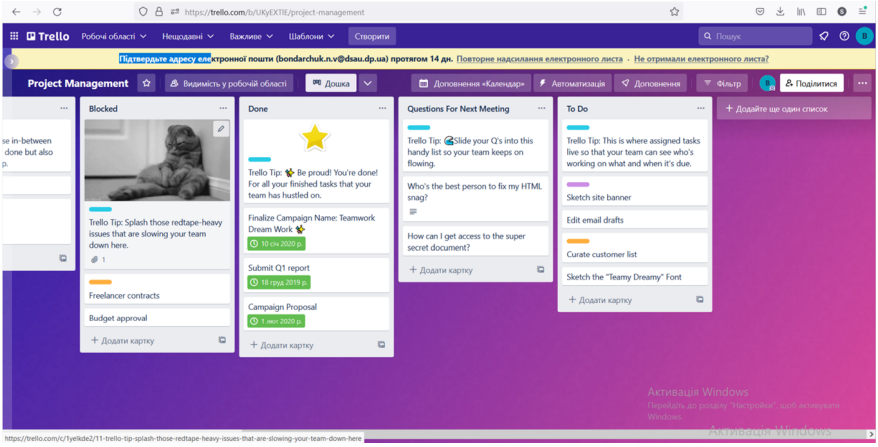

Fig. 1.6. Working with "Trello"

The Padlet virtual board is a universal online board (online wall) with an intuitive interface that is easy to learn and easy to use in the educational process. It can be used for project work, peering interaction, individual tasks or as a tool for gathering information from all process participants in one place [7].

The Padlet virtual whiteboard is available in 37 languages, including Ukrainian. After registration (you can also use Google and Facebook accounts), a blank space is displayed on the screen – a wall that you can immediately start filling with content. The created Padlet page can be sent to social networks, saved as an electronic document in PDF, Excel, CSV formats, received by RSS or sent by e-mail, embedded in your web page or blog using html code, and even use the mobile version by QR code.

When creating a Padlet board, various types of material placement (blank boards) are offered. In the process of working with the board, the type of placement of materials can be changed using the "Change format" option (in the additional menu in the upper right corner of the board).

Using the Padlet online whiteboard To register on the padlet.com website, you can use your email address or an existing Google or Microsoft account.

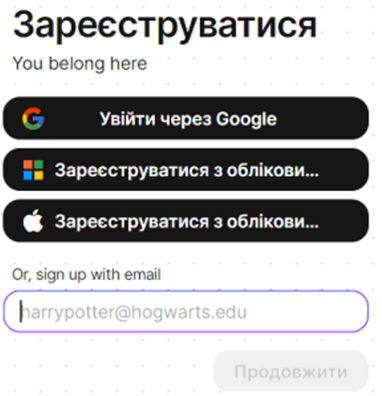

Fig. 1.7. Padlet.com site registration window

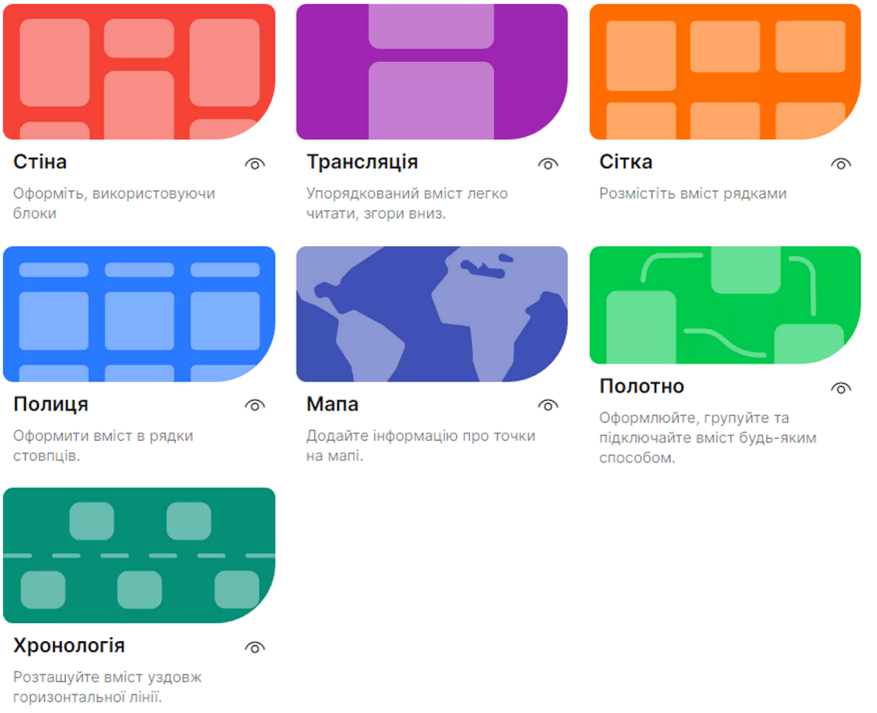

Fig. 1.8. The working window of the Padlet virtual whiteboard

To create a new board, use the “CREATE PADLET” button. To join the created board, use the “JOIN PADLET” button (a link to the board you want to join is required).

When creating a Padlet board, various types of material placement (blank boards) are offered. In the process of working with the board, the type of placement of materials can be changed using the “Change format” option (in the additional menu in the upper right corner of the board).

Padlet also has ready-made templates that will help you easily organize information in the desired form.

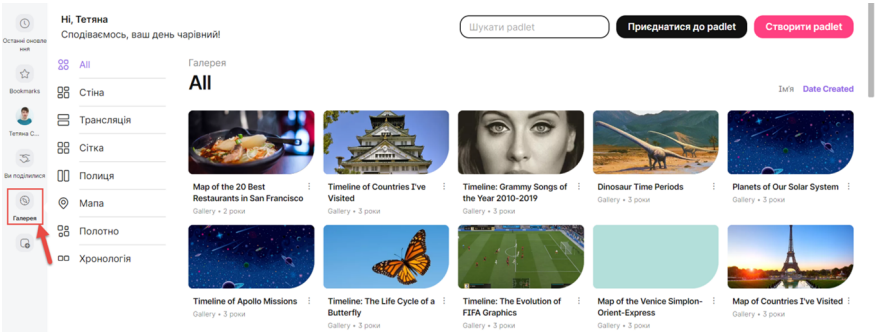

Fig. 1.9. Template options in the Padlet virtual whiteboard

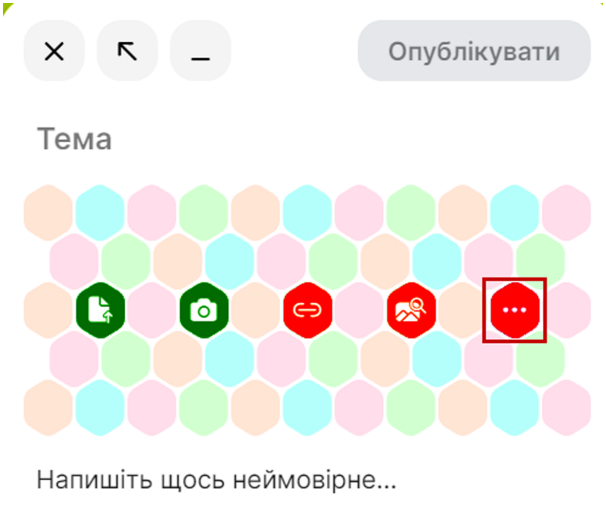

Fig. 1.10. Working window for adding posts

You can add posts to the wall using the button + in the lower right corner of the board or by double-clicking the left mouse button anywhere on the board. A post in Padlet allows you to add other objects in addition to text: links, files, images, etc.

A post in Padlet allows you to add other objects in addition to text: links, files, images, etc.

When creating a Padlet board, various types of material placement are offered Padlet also has ready-made templates that will help you easily organize information in the desired form. A post in Padlet allows you to add other objects in addition to text: links, files, images, etc.

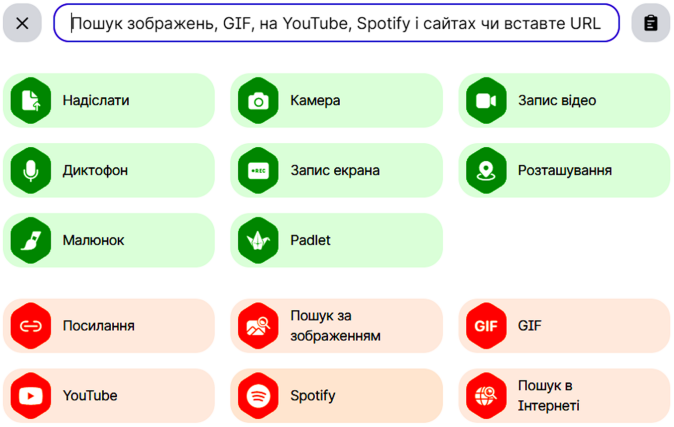

Fig. 1.11. Working window for adding other objects

In “Settings” you can change the name and description of the board, choose a wallpaper, adjust the parameters of posts, change the parameters of publication and collaboration.

Additional options allow you to copy the board (“Remake”), invite other participants to collaborate, distribute, export and print the board, change its type of material placement, clean of posts and delete.

With the help of the Padlet virtual board, the teacher can create a wall of blocks placed next to each other, a canvas with arbitrary placement of inscriptions, a broadcast with content arranged from top to bottom, a grid with blocks in a row.

Therefore, at the current stage of development of the education system, design becomes an integrated component of the modernization of the higher education system and provides an opportunity to significantly influence the processes of improving its quality. And the use of educational technologies will make it possible to more widely use the advantages and opportunities of the project approach in the educational process.

References

1. Fisher C. D. (2017). Padlet: an online tool for learner engagement and collaboration Management Learning and Educationamle.2017.0055 (in Ukrainian)

2. Ilchenko O. V. Vykorystannya web-kvestiv u navchal'no- vykhovnomu protsesi [The use of web-quests in the educational process. URL: http://osvita.ua/school/lessons_summary/proftech/32834. (in Ukrainian)

3. Morse N.V., Vember V.P., Boyko M.A. (2019). Vykorystannya tsyfrovykh tekhnolohiy dlya formuval'noho otsinyuvannya [Using digital technologies for formative assessment.]. Vidkryte osvitnye e-seredovyshche suchasnoho universytetu: elektronne naukove fakhove vydannya. pp. 202–214. DOI: https://doi.org/10.28925/2414-0325.2019s19 (in Ukrainian)

4. Online blackboard in the educational process (2018). Methodological recommendations / Compiler: I.O. Smirnova. Sumy. (in Ukrainian)

5. Sazanova L.S., Rusanova L.I. (2017). The use of web quests for the training of specialists of higher educational institutions Inozemna mova za profesiynym spryamuvannyam yak pidhotovka konkurentnykh fakhivtsiv do efektyvnoyi komunikatsiyi na inozemniy movi u navchal'nomu i profesiynomu otochenni. Odesa: ODUVS. Pp34-36 (in Ukrainian)

6. Інструкція по використанню програми Trello https://trello.com/guide/create-project#start-collaborating (in Ukrainian)

7. Chervonenko K.S. (2022). The use of the Padlet virtual board in the process of distance learning in higher education institutions. Naukovyy zhurnal Khortyts'koyi natsional'noyi akademiyi. DOI:https://doi.org/10.51706/2707 https://doi.org/10.51706/2707-3076-2022 (in Ukrainian)

8. Shvachych H.G., Tolstoy V.V. Petrechuk L.M., Ivashchenko Yu.S., Gulyaeva O.A., Sobolenko O.V (2017). Modern information and communication technologies Study guide Dnipro: NmetAU. (in Ukrainian)