CLOUD TECHNOLOGIES AND THEIR WAYS OF USE IN THE PROCESS OF PREPARATION OF THE FUTURE TEACHERS OF LABOR EDUCATION

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У статті розглядаються аспекти застосування хмарних технологій у навчальному процесі професійної підготовки в університеті. Проаналізовано основні особливості системи Google Apps for Education та ключові служби Google, які допомагають студентам навчатися, вдосконалювати свої навички та здібності, а також сприяють професійному зростанню майбутніх учителів трудового навчання.

Зазначено, що використання хмарних технологій у навчальному процесі вивчається широким колом місцевих та зарубіжних науковців. Ці технології можуть бути широко використані у професійній діяльності майбутніх учителів трудового навчання, а саме: G-mail, Документи Google, Сайти Google, блоги та Google Академію. Розкрито особливості використання хмарних сервісів при підготовці майбутніх учителів трудового навчання на факультеті технологій та дизайну, які застосовуються під час лабораторних занять з дисципліни «Основи інформаційних технологій». Говорячи про хмарні технології, не можливо не сказати про сайти, тому що багато вчителів трудового навчання мають особисті сайти, на яких вони представляють навчальні матеріали, різні майстер-класи, банки ідей, методичну скарбницю, яка містить розробки уроків і позакласних заходів, цікаві дидактичні матеріали, фото робіт учнів тощо.

Визначено, що хмарні технології пропонують альтернативу традиційним формам організації навчання, створюючи можливість особистого навчання, інтерактивних занять і колективного навчання, адже вони стимулюють інноваційні процеси, радикально змінюють навчальне середовище, роблять освіту більш доступною, мобільною, забезпечують спільний і безперервний доступ студентів до інформаційних освітніх ресурсів та сприяють формуванню віртуальних спільнот. Використання подібних сервісів у процесі підготовки майбутнього вчителя трудового навчання не тільки спрощує доступ до документів, але й зацікавлює, активізує роботу майбутнього фахівця, дає змогу отримати навички співпраці в команді при підготовці спільного проекту.

Ключові слова: хмарні технології, сервіси Google, професійна підготовка майбутніх учителів трудового навчання.

The formulation of the problem. In today's conditions none of the educational institution can work effectively without the use of modern information technologies. Cloud technologies are an alternative to the classical model of education. They provide innovative processes, radically change the learning environment and provide education with greater accessibility, mobility, provide students with common and continuous access to information educational resources and promote the formation of virtual communities. The only thing that needs to be provided to teachers and students that learn material using cloud-based technologies is access to the Internet.

The expediency and necessity of introducing the means of informational-communication technologies on the basis of cloud technologies in Ukraine is declared at the state level and reflected in the national project «Open World» (2010-2014), in the Strategy of

the Information Society Development in Ukraine for 2013-2020, which involves the formation of a modern information infrastructure based on cloud technologies [4].

The analisys of publications. The use of cloud technologies in the educational process is studied by a wide range of scientists, both foreign and domestic. Among the Ukrainian scholars we can distinguish: Bykov V., Vakaliuk T., Voitovych I., Kuzminska N., Lytvynova S., Lotiuk Yu., Maklakov H., Morze N., Oleksiuk V., Semerikov S., Serhiienko V., Soroko N., Seidametova Z., foreign scholars are: Armbrust M., Buchanan L., Lane A., Liyoshi T., Nijholt A., Kumar V., Fox A., Griffith R., Subramanian K., Sultan N. та ін. [2, С. 45–52].

The modern term cloud computing has begun to be used in the world of information technology since 2008. Cloud technologies are technologies that enable Internet users to access server computer resources and use software as an online service. Integration of cloud services into education today is a relevant subject for research.

Despite the fairly large number of works in the field of cloud technologies, experiments on their use and implementation in the learning process continue and give new results.

There are many Web apps, presentation platforms, and collaboration tools that are more elaborate and flashy, but the Google products are easy to use, with interfaces familiar to anyone who has ever used any word processing or presentation application. They are also free, and are universally available to anyone with virtually any type of smart device.

The Google Apps for Education cloud service is used in the field of training of the specialists in the field of labor training.

Google Apps for Education is web applications based on cloud technologies that provide students and teachers with the tools needed to effective communication and collaborative work.

They are used to create, collaboratively edit and discuss documents, tables, presentations using Google Docs; students can create individual and collective blogs and add a variety of materials into them: documents, calendars, notebooks, news; create a personalized Google search system, add them with useful links, which provides the ability to use secure educational search systems; create personal and collective Google Notebooks, comment and classify notes, open your notations for general use; create personal calendars and add a description of events into them, collectively plan activities; create a Picasa album, place pictures and photos in these albums, then use them on sites and blogs, link photos with Google maps; create their own video tutorials and groups, use YouTube media resources, and place their own video clips online; create a Web site on a Google site and construct it from many already familiar objects; add documents, tables, calendars, photos, videos, news, etc. to your site [7, С. 105–107].

Today, cloud services during the preparation of future teachers of labor training at the Faculty of Technologies and Design are used during the laboratory classes on the «Fundamentals of Information Technologies» discipline, which uses software that does not require licensing and upgrade versions. It is also important that the use of the cloud computing technologies eliminates the need for technical support for software, since control and monitoring of its operation, in particular, data storage, copying, protection against computer viruses and Internet attacks the provider makes itself. In this way of learning the student does not need a powerful computer with a large amount of memory, CD and DVD drives because all data is stored in the cloud. For learning, for example, just enough a regular laptop or a compact netbook, where the main thing is to connect to the Internet. These documents can be worked on collaboratively in real-time, by both staff and students, and they can be shared with the world or kept private according to your needs.

Students begin their work with creating their own e-mail G-mail.

Google Mail (G-mail) is a product of Google that provides a free e-mail with a huge storage space (about 7 Gigabytes). Google account gives you the ability to work with Gmail, Google+, YouTube and many other Google services. It includes the G-mail address and Google

profile, which allows you to improve and personalize Google's use [8, P. 214–215]. An example of the interface of G-mail e-mail is shown in Figure 1.
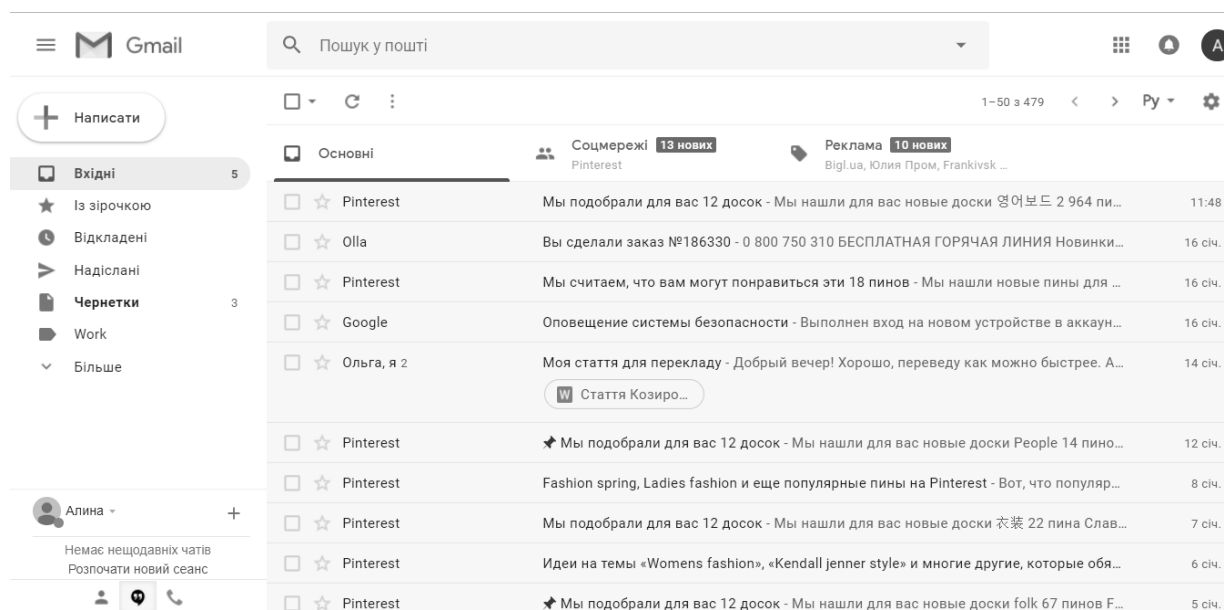

Figure 1. Interface of Google Mail (G-mail)

Using the created account, students can work with Google Drive and Docs (Figure 2) – integrated service components for storing, using, creating, modifying, and publishing any type of files. Google Docs uses text-based online publishers to create, modify, and publish text documents, tables, presentations, drawings, and forms of Google. These Web documents are closely linked to other GoogleApps products and provide great opportunities for collaborative work in real time.
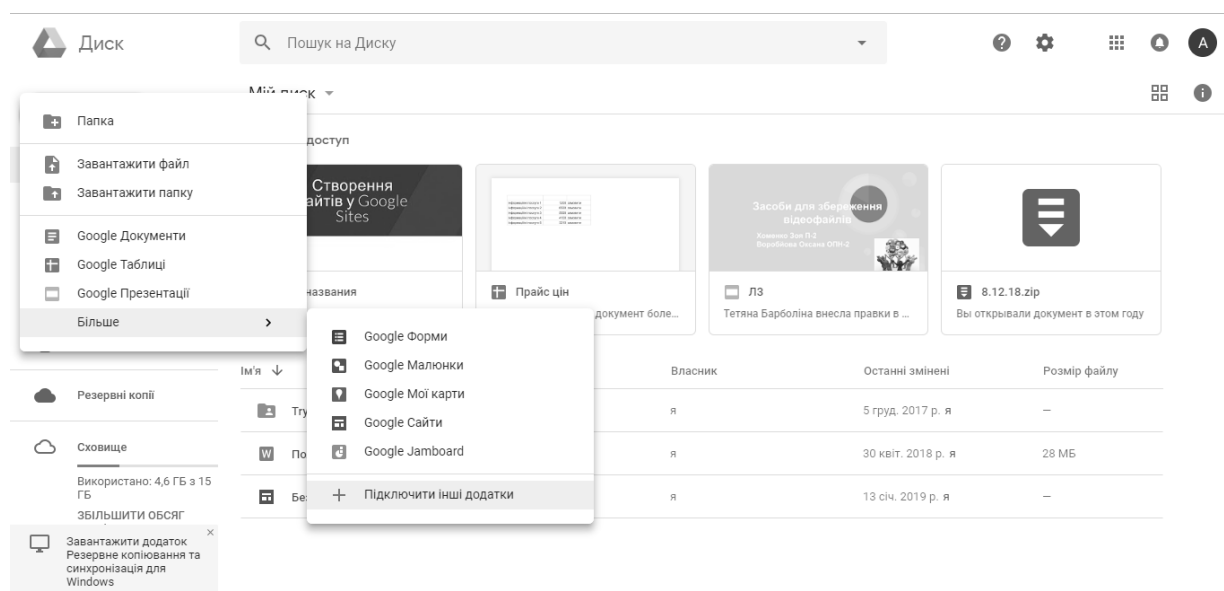

Figure 2. The Google Drive service and Google Docs window

With Google Drive, students centrally manage all their files, including Google Docs. Google Drive is a portable personal archive of files and folders that is always with you. It provides the ability to save all files and give other people access to any file. This service allows

you to get access to files, folders, and Docs in your Web browser or from any device on which this application is installed. In case of failure of personal devices, files will be securely stored on Google Drive. There you can store virtually everything and almost free of charge. Google Drive allows you to save any files, including text documents, presentations, music, photos and videos. You can open many types of files in your browser, including PDF files, Microsoft Office files [5, P. 150-154].

Another efficient service in the training of the future teachers of labor education is Google Sites – a service from Google, which offers its users the service of free creation and hosting of sites on the Internet. The service is a part of Google Apps [9, P. 201]. Many teachers of labor education have personal sites on which they present teaching materials, various master classes, ideas banks, methodical treasury, which contains the development of lessons and extracurricular activities, interesting didactic materials and photo products of students. As example we can mention the personal website of Boiarskyi Anatolii Volodymyrovych – teacher-methodologist of Computer Science, Drawing of Lokhvytska Gymnasium №1 (Figure 3). This site allowed him to systematize the achieved experience, to summarize the results of self-education, to share the results of his work with colleagues, teachers and students.

The main difference of creating sites in Google Sites is the ability to give access to your site to other users. The site owner can invite other users to work together, distribute access rights to materials, use information from other Google services on the site. In order to start creating sites, students create their own accounts on Google. They log into their account and choose Google Sites on their page. Actions on creating sites are simple and illustrated on the interface of the service [3, P. 97–99].

Templates are available to download, or students can create their own from scratch to fit in with their own faculty colors and logo. Students can upload files, create sites that have joint authors, and enjoy the ability to work on sites anywhere they have an Internet connection. Google Sites is also great for creating e-portfolios for both staff and students.

Based on Google Sites projects have a platform for comments and statistics services, and therefore each student will receive feedback from a teacher and groupmates, which in turn helps them to give students the love of research work.
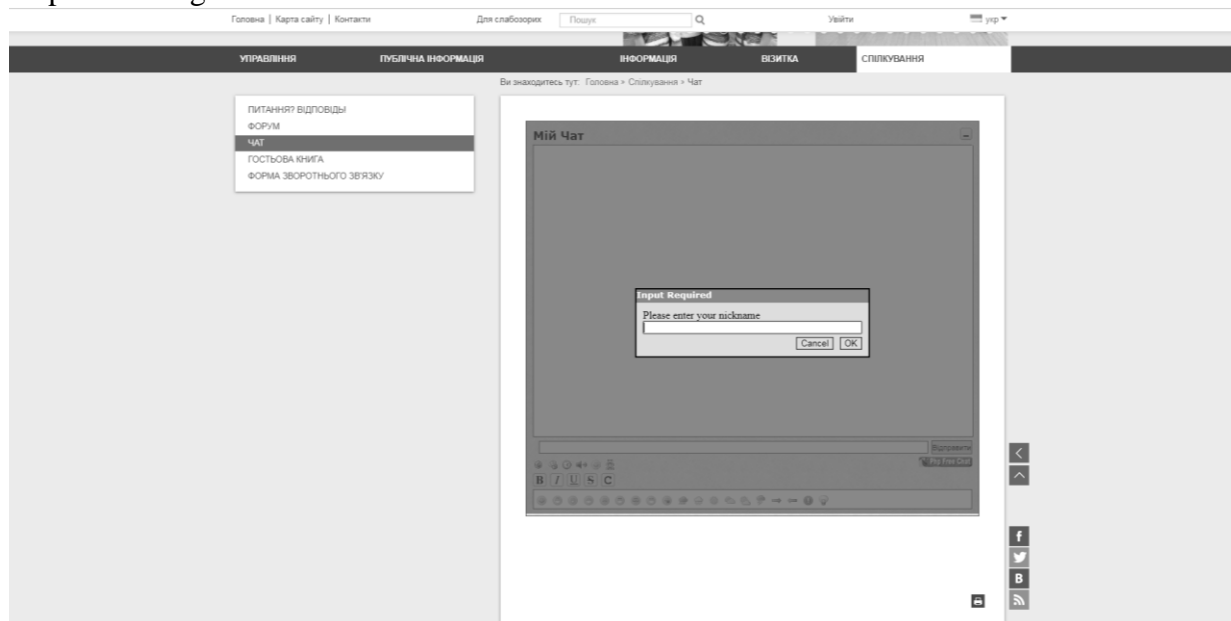

Figure 3. Example of the personal website of Boiarskyi A. V.

Being acquainted with the basics of site design students can move on to blogging. Blog is a personal page on the Internet, which is maintained and updated by the user at a convenient time. The blog posts lessons (topic, presentation material, tasks and tests). The blog is used to distribute educational materials or links to them. With the help of the educational blog you can complete the material outlined on the lesson with interesting facts, videos and necessary comments. With a blog post you can give a free ad, a preview, a reminder [6, P. 105-111].

Today it is impossible to imagine learning without the use of the Google search system – an online service (software and hardware complex with a Web-interface), which provides the ability to search information on the Internet. Today, this system is the world leader in modern Internet search. This is the most powerful, reliable and high-speed search system that delivers good search results in English as well as in Ukrainian. It uses the Yahoo search database and search algorithms, has its own Web-directory, supports search within the specified web site, gives excellent results in search of resources related to information technologies. But modern, universal search systems are not best suited for finding scientific information. Students use specialized scientific search systems with the aim to find such information. To search for such information, specialized scientific research systems are used. This search system includes the Google Academy, which allows you to search for scientific information and literature. Using a single request form, you can search in different disciplines and in different sources, including reviewed articles, dissertations, books, abstracts and reports published by publications of scientific literature, professional associations, higher education institutions and other scientific organizations. The Google Academy allows you to find the research that most closely matches your query among a large number of scientific papers [1, P. 21–23]. Such an example is the profile of the doctor of pedagogical sciences Sliusarenko Nina Vitaliivna (Figure 4) – a leading scientist in the field of technological education.
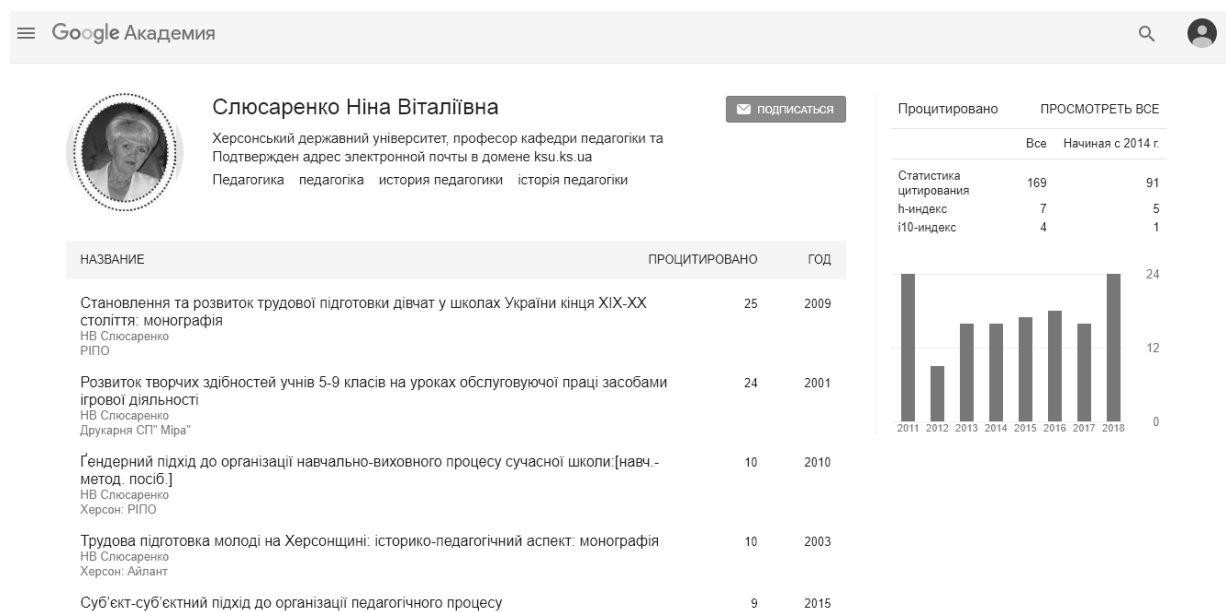

Figure 4. Example of the Google Academy page

All students are eager to learn new technologies, develop their intellectual abilities, and teachers through their cloud services increase their level of information and communication competence. Also we should note the increase of the positive motivation of students to study.

The use of these services in the process of preparing of the future teacher of labor education not only simplifies access to documents, but also interests, activates the work of the

future specialist, allows students to get skills in team work in the process of preparing a joint project.

Given all of the foregoing, one can confidently say that cloud technologies in education are its future. Cloud technologies offer an alternative to traditional forms of learning organization, creating an opportunity for personal learning, interactive classes and collective teaching. Cloud technologies have enormous potential and offer wide opportunities not only for educational institutions, but also for any person who is interested in obtaining quality education. The introduction of cloud technologies will not only reduce the cost of acquiring the necessary software, improve the quality and effectiveness of the educational process, but will also prepare for life in the modern information society.

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ISHCHENKO A., TYTARENKO V.
CLOUD TECHNOLOGIES AND THEIR WAYS OF USE IN THE PROCESS OF PREPARATION OF THE FUTURE TEACHERS OF LABOR EDUCATION

The article covers the aspects of application of cloud technologies in the educational process. The analysis of key features of the Google Apps for Education system and key Google services that help students to learn, to improve their skills and abilities, and promote the professional growth of the future teachers of labor education is analyzed.

We mentioned that the use of cloud technologies in the educational process is studied by a wide range of local and foreign scholars. These technologies can be widely used in the professional activity of the future teachers of labor education. They include G-mail, Google Docs, Google Sites, blogs and Google Academy.

Also we disclosed the features of using cloud services during the preparation of future teachers of labor training at the Faculty of Technologies and Design which are used during the laboratory classes on the "Fundamentals of Information Technologies" discipline. Talking about cloud technologies we can't help saying about sites because many teachers of labor education have personal sites on which they present teaching materials, various master classes, ideas banks, methodical treasury, which contains the development of lessons and extracurricular activities, interesting didactic materials and photo products of students.

We concluded that cloud technologies offer an alternative to traditional forms of learning organization, creating an opportunity for personal learning, interactive classes and collective teaching.

Key words: *cloud technologies, Google services, the professional training of the future teachers of labor education.*