I. ПРОБЛЕМИ МЕТОДИКИ НАВЧАННЯ МАТЕМАТИЧНИХ ДИСЦИПЛІН

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THE EFFECTIVENESS OF MOODLE IN MASTERING ENGLISH BY STUDENTS PROGRAMMERS

MOODLE (Module Object-Oriented Dynamic Learning Environment) is one of the fastest growing free, open source virtual learning environments around the globe at the moment. There are certain characteristics that make this online platform particularly attractive to teachers who collaborate with their students in different subject areas. First of all, Moodle is easy to use and we don't need any programming knowledge to work out an online course in an academic discipline or to deliver a lecture to our students or to do a project. Also, we may consider Moodle a convenient tool of interaction between teachers and their students because it provides feedback on tasks and gives students independent learning pathways which are useful for students who study individually. Any student can use Moodle if they have basic computer skills and are not necessarily familiar with Moodle's basic features. This makes the Moodle online platform the most widely used learning management system in the world.

In its origin, Moodle is based on the idea that individuals learn new things or construct knowledge through experience by comparing new things to what they already know. They do this by solving realistic problems, often in collaboration with other people. Moodle is built on this approach, and many of the core activities blend themselves well with this type of learning.

The Moodle online system is firmly rooted in a communicative approach to language learning and this makes it a convenient tool of learning a foreign language. Moodle tries to make the student the centre of the learning language experience wherever possible. It helps to find all possible ways of encouraging interaction in the target language, making materials engaging and effective. The system encourages reflection and self-improvement on the part of the language learner and the teacher. And that is why many university students speak in favour of the Moodle platform.

Students say that Moodle gives them "greater choice over their own learning, both in terms of the content of learning and processes they might employ. The use of self-assessment is one example of this".

Also, Moodle pays much attention to thinking skills. Language should serve as a means of developing higher-order thinking skills, also known as critical or creative thinking. In language teaching, this means that students do not learn language for its own sake, but in order to develop and apply their thinking skills in situations that go beyond the classroom.

On Moodle, meaning is viewed as the driving force of learning. Content-based teaching reflects this view, and seeks to make the exploration of meaning through content – the core of language learning activities. It's possible to create simple low-level tests or quite difficult ones.

In this case, the teacher is viewed as a facilitator who is constantly trying out different alternatives; that is, learning through doing.

Moodle provides diversity in learning a foreign language as well. We know that learners learn in different ways and have different strengths. And teaching needs to take these differences into account, rather than try to force students into a single mold. The system can adjust to learners of all levels and students can go at different speeds of learning.

When designing a course of computer terminology for 1st year students of Informatics (Computer Science), we take into consideration several aspects. First of all, the importance of terminology for specialists in all fields who study English. When asked what aspect of English they most like learning, university students often reply: "vocabulary". The reason they give is almost always something like: "Because it makes me feel rich", "It means I can get what I want", "It helps me do things in the language". Clearly, vocabulary has an important role when reading professional texts in English. More than 70% of all words in these texts are terms. They are crucial for understanding. That is why, judging from students' answers, we have chosen a large number of various learning activities aimed at expanding their vocabularies within the Moodle system. Among the vocabulary activities the most preferred by first years are: a vocabulary-gap-fill, vocabulary matching exercises, a personal glossary, text matching activity, mind mapping etc. Some of them are shown in table 1.

Table 1

Vocabulary exercises suggested for the "English Terminology" course for the specialty "Informatics" (Computer Science)

Vocabulary matching exercise

Computer bus	A small device that a computer user pushes across a desk surface in order to point to a place on display screen and to select one or more actions to take from that position
Router	A device that serves to connect all of the parts of a computer together
Network	An input device that allows a person to enter symbols like letters and numbers into a computer
Memory	An electronic device that manipulates information or data
Monitor	A set of physical connections, which can be shared by some hardware components in order to communicate with one another
Motherboard (mainboard)	A device or, in some cases, software in a computer that determines the next network point to which a packet should be forwarded toward its destination
Mouse	The piece of computer hardware, which displays the video and graphics information generated by the computer through the video card
Computer	A device that captures images from photographic prints, posters, magazine pages and similar sources for computer editing and display
Computer keyboard	A group of two or more computers linked together
Printer	A world-wide system of computer networks – a network of networks in which users at any computer can get information from any other computer
Scanner	A computer hardware device used to store information for immediate use in a computer
Internet	A device that accepts text and graphic output from a computer and transfers the information to paper

*Vocabulary gap-filling exercise*_____

POST, driver, bootstrap loader, real-time, Photoshop, HTML, websites, single tasking, power button, interrupts

1. The web pages are organized in _____.
2. You can make a web page with an _____ code.
3. Operating systems are divide into _____ and multitasking.
4. By using the _____ program to enhance and improve their proofs, photographers are able to edit images to the precise needs and specifications their client desires.
5. The _____ activates the power supply in the PC, sending power to the mainboard and other components.
6. The path between the operating system and virtually all hardware not on the computer's motherboard goes through a special program called a _____.
7. _____ operating systems are used to control machinery, scientific instruments and industrial systems.
8. The _____ loads the operating system into memory and allows it to begin operation.
9. A special signal sent by hardware or software to the CPU is called _____
10. The _____ is a small computer program within the BIOS that checks for hardware failures.

Finding antonyms   Log off –_____ ; input – _____; minimize – _____; cut – _____; insert – _____; upper case letters – _____; ROM – _____; text – _____; digital computers – _____; start up – _____; software – _____; turn on – _____; multitasking – _____; online – _____; a local network – _____; internal bus – _____ ; pop-up menu – _____; run a program – _____.

Finding synonyms   Character – _____; display – _____; error – _____; message – _____; folder – _____;

Grouping computer terms   _____

PC, Ada, Wi-Fi, LAN, Assembly language, WAN, e-book, C#, CAD, Perl, BIOS, RAM, Python, e-mail, modem, Fortran, Internet, www, C++, ROM, CPU, Prolog, SQL, e-zine, Netiquette, Ruby, URL, JavaScript, USB, SMS, PHP, OS, Pascal, Winchester, Smalltalk, QWERTY, Java, COBOL

Find the names of programming languages among the words and abbreviations given above:

Ada, Assembly language, C#, Perl, Python, Fortran, C++, Prolog, SQL, Ruby, JavaScript, PHP, Pascal, Smalltalk, Java, COBOL.

Making up word combinations using the key word
Electronic:

electronic art, electronic attack, electronic brain, electronic business card, electronic catalogue, electronic machine, electronic mailbox; electronic mode; electronic newspaper; electronic publication; electronic store, electronic clip, electronic circuitry, electronic clock, electronic colour correction; electronic computer, electronic control; electronic library, electronic

navigation, electronic notebook; electronic simulator, electronic data, electronic device, electronic dictionary, electronic journal, electronic music, electronic presentation, electronic spreadsheet

Mind mapping Write 35 computer terms on the topic Computer hardware:

The central processing unit (CPU), memory, bus, monitor, keyboard, ….

Listen to the dialogue and find ten computer terms in it

Fay: Hey Jerry, how often do you use the Internet?

Jerry: Oh, I use it every day! I check my email, read the news, chat with family and friends all around the world. I love the Internet!

F: Yeah, it's great, isn't it? Sometimes I stay online for hours. *(5 seconds pause)*

Then says:

So, how do you connect to the Internet?

J: Usually I just dial 163 or 96600 to log on, and I get billed directly to my telephone account. It's quite convenient.

F: That must be slow! I have an ADSL connection, so I can download pictures and music.

Read the text and find 15 computer terms in it

Multitasking

Mainframe computers usually *process* several *application programs concurrently, switching* from one to the other, for the purpose of increasing processing productivity. This is known as *multiprogramming* or *multitasking*, which requires a powerful *operating system* incorporating work *scheduling facilities* to control the switching between *programs.*

In *multi-user environments* an operating system is required to *control* terminal *operations* on a *shared* access basis as only one *user* can *access* the *system* at any moment of time. The operating system *allocates* control to each *terminal* in turn. Such systems also require a system for record *locking* and unlocking, to prevent one user attempting to read a *record* whilst another user is updating it, for instance. The first user is allocated control to write to a record (or *file* in some instances) and other users are *denied* access until the record is *updated* or *unlocked.*

Give answers to the following questions

1 What computer element was invented in 1947? (the transistor)

2. What did Sholes (an American engineer) invent? (the qwerty-keyboard)

3. What did Tim Berners-Lee invent in 1989? (the web, the first website in history)

4. What computer device was invented in 1968 by Douglas Engelbart? (the computer mouse)

5 What did Conrad Zuse design in 1929? (the first mechanical computer)

6. What internet service started in 1962? (the e-mail service)

7. What society was formed in 1992? (the Internet society)

8. What programming language did Dennis Ritchie develop? (the C programming language)

9. What computer language has the motto "Write once, use everywhere"? (Java)

10. What computer term did Ted Nelson coin in 1968? (Hypertext)

Put the paragraphs of the text in the right order How an OS works

Also, operating systems can use *virtual memory* to run processes that require more main memory than is actually available. With this technique, space on the hard drive is used to mimic the extra memory needed. **(A)**

Operating systems control different computer processes, such as running a spreadsheet program or accessing information from the computer's memory. One important process is the interpretation of commands that allow the user to communicate with the computer. Some command interpreters are text oriented, requiring commands to be typed in. Other command interpreters are graphically oriented and let the user communicate by pointing and clicking on an *icon.* Beginners generally find graphically oriented interpreters easier to use, but many experienced computer users prefer text-oriented command interpreters because they are more powerful. **(B)**

All modern operating systems are multitasking and can run several processes simultaneously. In most computers there is only one *central processing unit (CPU),* (the computational and control unit of the computer), so a multitasking OS creates the illusion of several processes running simultaneously on the CPU. **(C)**

According to their ability to do one or more jobs at a time, all operating systems can be divide into single-tasking and multitasking. The more primitive single-tasking operating systems can run only one process at a time. For instance, when the computer is printing a document, it cannot start another process or respond to new commands until the printing is completed. **(D)**

(1B, 2D, 3C, 4A)

All exercises presented on Moodle are flexible. For example, we can change the settings to allow multiple attempts for our students to practice and improve. We can also enhance students' learning by providing informative feedback. All their marks appear in the Moodle gradebook, which allows both students and their teacher to get a good overview of students' progress.

Another nice feature of Moodle is that teachers can get a report on the responses students give. We can determine how often a student logs into the site, what time of day he or she logs into the site, and what he or she does while logged in. The ability to determine how many times a student interacts with the Moodle system, may provide insight into students' level of motivation and interest.

Additionally, the ability to monitor a student's performance as determined by assessment systems on Moodle, automated or teacher-generated, may enable us to better assist students in need of guidance and adjust the curriculum to meet the needs of those who will benefit from more academic challenges.

Conclusion

1. Moodle highlights the social nature of learning stressing that it is not an individual, private activity, but a social one that depends upon interaction with others. English is not seen as a stand-alone subject but is linked to other professionally-biased subjects in the curriculum.

2. The Moodle online platform offers ways of providing both informal and formal assessment. All marks can be collected in an online gradebook. The system also provides some basic statistics which teachers can use to see how well their tests are working and to improve them if necessary.

3. Evaluational programs track students' progress on a macro level via the use of evaluative tools such as tests, individual course grades, and more frequently, cumulative grade averages. It is also possible to monitor student access and activity at a macro level.

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ПРОЕКТНО-ДОСЛІДНИЦЬКА ДІЯЛЬНІСТЬ У ПРОЦЕСІ НАВЧАННЯ МАТЕМАТИКИ З ВИКОРИСТАННЯМ СИСТЕМИ ДИНАМІЧНОЇ МАТЕМАТИКИ GEOGEBRA

У дослідженні продемонстровано ефективність використання системи GeoGebra в процесі розв'язування математичних задач. Наведено інноваційні аспекти щодо використання системи динамічної математики GeoGebra. Значна увага акцентується на особливостях застосування теорії розв'язування дослідницьких задач у процесі проектно-дослідницької роботи. Продемонстровано алгоритми розв'язування дослідницьких задач та розглядаються етапи процесу дослідження. Наведено ряд завдань, розв'язаних з використанням системи динамічної математики GeoGebra на основі теорії розв'язування дослідницьких задач. У дослідженні продемонстровано основні етапи проектно-дослідницької діяльності. Акцентується увага на основних етапах розв'язування дослідницьких задач (діагностика та редукція, що містять процедури аналізу проблеми; етапи трансформації і верифікації, що полягають в синтезі ідеї розв'язування).

Ключові слова: теорія розв'язування дослідницьких задач, алгоритм розв'язування дослідницьких задач, дослідницька діяльність, GeoGebra, діагностика, редукція, трансформація, верифікація, проектно-дослідницька діяльність.

Актуальними завданнями загальноосвітнього навчального закладу є пошук оптимальних шляхів зацікавлення учнів процесом навчанням, підвищення їх розумової активності, спонукування до творчості, виховання школяра в контексті формування життєво й соціально компетентної особистості та розвитку дослідницької діяльності учнів. В процесі навчання дисциплін природничо-математичного циклу з метою вирішення