

# Implementation of the MOODLE learning management system potential for students' creative self-development

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**Abstract.** This article attempts to describe the potential of the MOODLE learning management system contributing to the creative self-development in the process of teaching the subject “Oral and Written Speech Practice of the English Language” to students of the “Pedagogical Education” training programme. Despite the impersonality and seeming universality of the digital educational environment, it can act as a means of developing students' individual creative abilities so much needed in the era of the post-industrial society. The main objective of the article is to show possible ways of using the MOODLE learning management system for the creative self-development of students. A wide range of the MOODLE tools helps to increase individualization of education and build students' individual educational trajectories. In the work with such elements as Forum, Glossary, Database, Assignment and Wiki interaction between students and teachers in the development of new knowledge with creative potential comes to the fore. The conclusions of the article can be applicable in the process of organizing activities in the electronic learning system at the stage of working out assignments aimed at the creative self-development of students.

## 1 Introduction

Building up a digital economy is one of the main areas of the policy of a modern state [1]. Today, digital transformation is considered [2] to be a process of qualitative changes associated with the introduction of innovations, flexible organizational and business models. This process is based on improved technologies, updated production processes, analytical developments and daily creativity of the staff. And it means that in each field of the professional activity the role of mind power and creativity increases and they cannot be replaced by any artificial intelligence.

The global changes we observe in the society inevitably lead to changes in education. Thus, we are talking about a serious transformation of the educational process based on the introduction of modern digital technologies in order to effectively solve educational problems, i.e. about the formation of a digital educational environment (on October 25, 2016 the passport of the priority project “Modern Digital Educational Environment” [3] was approved). However, according to experts, the digitalization of education, being its integral

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part in the era of the post-industrial society, is becoming controversial. On the one hand, it leads to the individual creative development, the creation of an open global society based on the mutuality of purposes and values, and on the other hand, it can lead to a loss of personal freedom, manipulations of the consciousness, the lack of the personal component of education, weakening of the creative potential of a person, a crisis of identity and humanism [4, 5, 6]. It is safe to assume that the maximum result in learning can be achieved only by the combination of digital and traditional approaches, as well as by the humanization of education (A. Maslow, S. Frank, K. Rogers, J. Kelly, A. Combs, E. Klapared, K.N. Ventzel, J. Korchak, R. Steiner, S. Frene, etc.) [7]. The possibility of considering the potential of combining the principles of the traditional approach to learning aimed at developing the creative abilities of learners with the achievements of the modern digital technologies makes this study relevant.

Universal digitalization by all means has an impact on higher education as it changes the professional activity requirements and content of education [8, 9]. To remain competitive, universities must take into account today's socio-cultural and technological factors and, as a result, introduce digital technologies into the educational environment. This leads to a qualitative change of the role of teachers, a change in their activities since it requires an increase of the intellectual and creative components. The teacher must be competent in the field of information and communication technologies [10], be able to demonstrate a creative approach to solving the tasks assigned. As for modern students, in the process of their professional formation they must learn to work with large bodies of constantly changing information; plan their own educational activities building their individual educational trajectories; organize independent work; find effective ways to achieve the goals set using both traditional and digital resources; interact with other participants within the educational process; use the latest digital tools, etc. And that is where the development of creative abilities and qualities of students, without which the modern educational process cannot be imagined, comes to the fore again [11].

Mankind has been concerned with the problem of creativity since ancient times (Aristotle, Heraclitus, Plato, I. Kant, L.S. Vygotsky, S.L. Rubinstein, M.G. Jacobson, G.I. Schukina, A.S. Maidanov and many others). At the same time, we can speak about the whole school of thought studying precisely the creativity and creative activity of students (S.M. Varnavskikh, L.V. Ivanov, O.L. Rakovskaya, B.K. Ukueva, I.V. Fufaev, E.R. Statsenko, A.Yu. Mukhin, A.S. Hosseini, R.J. Sternberg, W.M. Williams, etc.). We believe that it will be fair to note that in view of the fact that modern students have a serious role, the role of co-organizers of their own educational process and active participants in the creation of knowledge [12, 13], it would be more correct to speak about the creative self-development of students. In this article, the creative self-development is understood as follows: "the continuous development of the creative abilities of students, the adjustment of ego-identity and the formation of components of innovative readiness in the process of independent individual and collective activity taking place in a specially organized educational environment and provided by pedagogical support" [14]. In our opinion, this definition successfully combines not only the concept of creative self-development as a psychological and pedagogical phenomenon but also takes into account the features of the modern educational context.

Today, universities using their digital platforms and e-learning systems, in particular the MOODLE learning management system, have an opportunity to implement their educational activities taking into account the latest requirements of the economic situation [15]. At the same time, they bring about all the necessary conditions for the creative self-development of students of different training programmes. However, understanding the significance of creative self-development is especially important for students of the pedagogical educational programme specialization. In their learning process they gain practical skills necessary to organize the learning process in general. Such skills, namely the ability to work in a team,

look for agreed decisions, organize a team and manage its activities, evaluate the potential of each member of the team, etc., will be used by them in their future professional activities.

The purpose of this study is to show the possible ways of using the MOODLE learning management system for the creative self-development of students of the pedagogical educational programme specialization of language faculties. Foreign language classes provide a wide range of opportunities to exploit the potential of MOODLE primarily due to the possibility of creating and applying various types of visual aids (pictorial, sound, graphic, symbolic, etc.). In addition, while learning foreign languages, it is important to increase the individualization of education, the interactive nature of working with the teacher and members of the study group, which is also very important for distance learning.

## **2 Materials and methods**

The study was conducted at the Faculty of Foreign Languages of Bryansk State University named after Academician I.G. Petrovsky where the MOODLE learning management system has been used in teaching the subject “Oral and Written Speech Practice of the English Language” to students of the “Pedagogical Education” training programme for many years. The article discusses the use of the potential of the MOODLE learning management system for the creative self-development of students based on the topic “Travelling” studied by second-year students.

In the work, the methods of analysis, systematization, comparison (methods of theoretical research), as well as methods of studying scientific literature, observations (empirical research methods) received integrated use.

## **3 Results**

The research shows that the MOODLE learning management system possesses a great potential for the development of students’ creativity due to a wide range of tools.

### **3.1 Using the Forum Element**

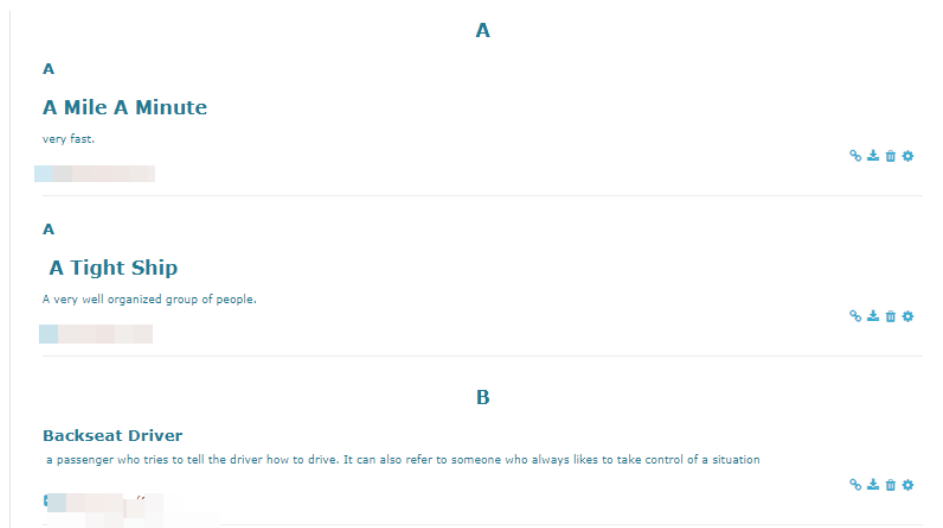
A methodically justified technique for teaching the topic “Travelling” was to immerse students in the topic using the “Forum” element. Students were encouraged to use this asynchronous communication tool to suggest and comment on statements and quotes on the topic under study (Figure 1). The principle of productivity, involved in the implementation of this element, includes the orientation of the development of the creative potential of students towards the acquisition of a real, concrete, own product (in this case, the creative work of students, which is significant for themselves and for the whole group). The principle of productivity expresses the creative potential, on the one hand, of the culture itself, and on the other, the creative potential of students.



**Fig. 1.** One of the students' answers in the Forum element.

### **3.2 Using the Glossary element**

The creation of a glossary on the topic was the next stage of the work on the topic and implied the collective activity. Creativity, including analysis, in this case manifests itself in the creation of a new information product, namely, a selection of words and expressions on the topic under consideration, grouping lexical units according to topics of interest to them, thus presenting their own view on the vocabulary on the proposed topic. Noteworthy is the approach of one of the groups, which included a selection of culturally-labelled units, specifically idiomatic expressions on the topic, into the glossary (Figure 2).



**Fig. 2.** Examples of the students' answers in the Glossary element.

### 3.3 Using the Database element

One of the subsequent elements was the use of the Database in order to create conditions for joint work on the accumulation of images related to the topic, as well as to consolidate the active vocabulary on the topic using the visualization of lexical units to be learned. The fulfillment of this element contributed to the folding of mental contents into a visual image; being perceived, the image unfolds and serves as a support for adequate mental and practical actions (Figure 3).



**Fig. 3.** Examples of the students' answers in the Database element.

### 3.4 Using the Assignment Element

At one of the final stages of the work on the topic, students were asked to write an essay using one of the quotes given in the forum (Figure 4). This task, which develops the creative potential of the individual, is a multifaceted structural and complex phenomenon, among the main components of which is the focus of the individual on the creation and achievement of original socially significant and progressive results; creative problem solving styles.

### 3.5 Using the Wiki Element

#### Savvy Travelling

Imagine you're a group of well-travelled bloggers publishing tips to help people make the most of their travelling. Your task is to write an article following the suggested plan:

1. Introduction
2. How to plan a holiday
3. Choosing means of travelling.
4. Accommodation
5. Activities.
6. Conclusion.

Do your best to use active vocabulary. You may use pictures.

**Fig. 4.** The outline of the activities in the Wiki element.

At the final stage of the work on the topic the Wiki element was used with the aim of consolidating and activating vocabulary. The students were asked to imagine themselves as a group of well-travelled bloggers giving tips on how to make the best of their travelling.

The use of this element served as an incentive to students' reflexive activity and led to the development of their skills for reflection in the educational process at the university which in their turn form the basis for the formation of a future teacher as a subject of his/her own professional activity. The described element contributed to the implementation of the principle of integrativity, bringing about the inclusion of mechanisms for increasing students' motivation, an individual approach to them into the content of all types of activities. Integrativeness is a state of consistency, stability of parts that make up any phenomenon or process. It serves as a criterion for the integrity of the process of developing the creative potential of students through the unity of the content of education, the interconnection of subjects, uniform requirements for students. Integrity is also manifested in the unambiguity of setting the goals of education, the combination of socio-cultural means with the help of which the creative potential of students develops. The Wiki element also implemented the principle of subjectivity of teaching, which requires the orientation of the educational process towards setting the stage for the creative development of students' potential. Subjectivity is an indicator that reflects students' ability to make original decisions in specific situations, to be responsible for the choice of their behavior, the activities of the group. The essence of the proposed Wiki element allowed students to show independence of choice and individual advancement in activities, evaluate their results in educational and professional activities.

## 4 Discussion

The success and effectiveness of the learning process to a large extent depends on how the teaching material is organized and structured. Any training course is aimed at the interaction of the teacher and the student. Accordingly, the basic requirements for the organization of training, the principles of selection, structuring of educational material, the organization of control of students will be determined by this interaction, as well as the didactic features of the components of the course. The teaching material should be structured in such a way as to involve students in independent cognitive activities. It is necessary to interest students. Motivation must be maintained throughout the course, as it is the necessary component of learning.

The MOODLE learning management system provides the teacher with an extensive toolkit for presenting educational and methodological materials of the course, conducting theoretical and practical classes, organizing educational activities, both individual and group ones. Being focused on distance education, the MOODLE learning management system has a wide range of communication tools. This is not only e-mail and the exchange of attachments

with the teacher but also a forum (general news on the main page of the program, as well as various private forums), chat, private messaging, blogging.

In the guide for teachers at the Electronic System of Education of Bryansk State University the MOODLE tools are considered from the point of view of Bloom's taxonomy, that is for which level the tool is designed: knowledge, understanding, application, analysis, assessment, creation (Figure 5).

The idea of creative self-development is a very broad concept, teachers may have difficulties in what to do in this field, what tasks to offer. Thus, Bloom's taxonomy helps a teacher set educational goals. According to these goals, the teacher formulates assignments for students and chooses assessment tools. With the help of Bloom's taxonomy the teacher organizes the process of learning, and students not only receive new knowledge but also learn to analyze it and apply it in life.

Bloom divided educational goals into three areas: cognitive, affective, and psychomotor (Bloom, B.S., (Ed.). 1956. Taxonomy of educational objectives: The classification of educational goals: Handbook I, cognitive domain. New York: Longman).

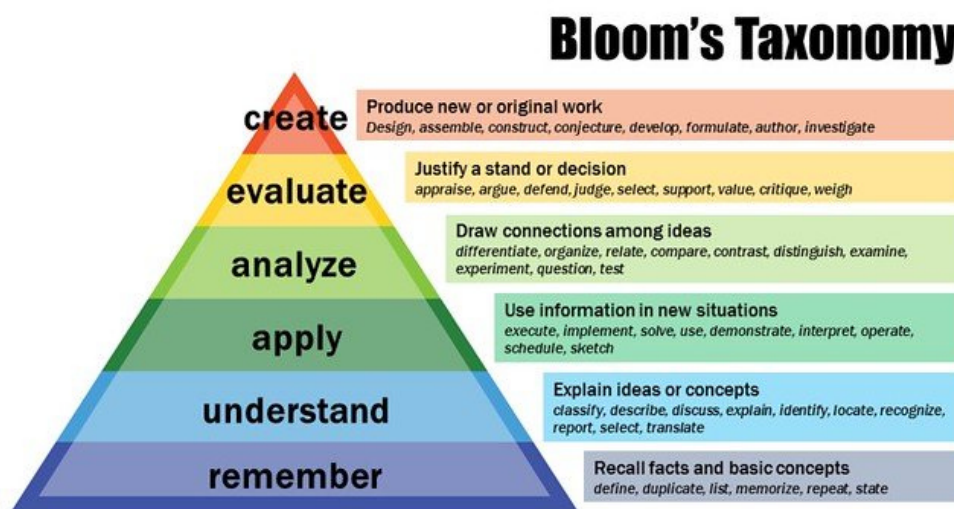


Fig. 5. Bloom's taxonomy (<https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>).

The psychomotor sphere is "I create". Psychomotor goals are associated with the development of practical skills and the ability to use various tools.

In 1999, Lauryn Anderson and her colleagues published an updated version of Bloom's Taxonomy that takes into account a broader set of factors that influence teaching and learning (Anderson, L. W. & Krathwohl, D. R. 2001. A taxonomy for learning, teaching, and assessing. New York: Longman; Anderson, L. W. 1999. Rethinking Bloom's Taxonomy: Implications for testing and assessment). The revised taxonomy attempts to correct some of the errors in the original taxonomy. Creativity, a process not included in the earlier taxonomy, is the highest component in the new version. This skill involves connecting the already known to create something new. To complete creative assignments students generate, plan, and produce.

At the highest "create" level learners must have remembered, understood, applied, analysed, and evaluated something before they can create anything new. This is the most demanding cognitive task because it makes people deploy all the lower-level skills to produce something new (Bloom's taxonomy of educational objectives).

Using the MOODLE learning management system, the teacher can create courses filling them with content in the form of texts, auxiliary files, presentations, questionnaires, etc. In

accord with the results of students' completed assignments the teacher can give marks and comments. Thus, the MOODLE learning management system is not only an apparatus for creating educational material but also for providing interactive co-operation between participants in the educational process.

To represent course materials the MOODLE tools (modules) can be split into static (course resources) and interactive (elements of the course).

The most common properties of all interactive elements are as follows:

1. In working with any interactive element, the student must perform some action: write a message, make a choice, formulate a definition of the term, etc.

2. The teacher has a possibility to evaluate the performance of students in each element. The grade can be set in points (from 1 to 100) or in another scale that the teacher will independently create (for example, "unsatisfactory", "satisfactory", "good", "excellent").

3. Each interactive element has settings for students to work in groups.

The variety of interactive elements united by the concept of interactivity or interaction can be divided into two categories reflecting the purpose of the element in the educational process:

- Elements of joint activities. This is a set of elements (Forum, Glossary, Wiki, etc.) in the work with which the task of organizing cooperation (communication) between students and teachers in the development of new knowledge comes to the fore. Here assessment is possible, but often pedagogically ineffective.

- Knowledge control tools (Assignment, Test, Lecture, etc.). The purpose of this category of interactive elements is to adequately reflect the level of knowledge of students.

Let us consider the interactive elements of the course from the point of view of the possibility of their use for the creative self-development of students.

The Forum tool is used to organize discussions and forums can be grouped according to topics. After creating a topic, each participant in the discussion can add their answer to it or comment on existing answers. In order to enter a discussion, the user can simply view the discussion topics and answers that are suggested by others. This is especially convenient for new members of the group to quickly master the basic topics that the group is working on. A history of discussion of these issues is stored in the database. The user can also play a more active role in the discussion suggesting their own answers, comments and new topics for discussion. They can be used for more than just in-depth discussion. It is possible to come up with other ideas for activities: group discussions, presentations of weekly results of the work on projects, posting links to web quests and so on. Forums can be a means of feedback, assessment, support, consultation, etc.

The Glossary tool allows the teacher to create and edit a list of definitions, just like in a dictionary. The presence of a glossary explaining the key terms used in the curriculum is simply necessary in the context of extracurricular independent work. The Glossary element makes it easy for the teacher to create such a glossary of terms. Personalities can also be organized in the form of a glossary. The glossary can be opened to create new entries (articles) not only for the teacher but also for the students. The glossary is one way to fundamentally improve students' self-study research experience. The Glossary course element provides an opportunity for both the teacher and students to comment on articles and grade them.

It is very important to teach students to accumulate and organize information in a structural way. In the MOODLE environment, there is the Database tool for working with information structures.

The Database tool is a complex interactive MOODLE element, the creation of which requires several stages:

- 1) Specification of the installation (basic) parameters.
- 2) Setting the structure of the information stored.



- 3) Development of forms for entering records.
- 4) Development of templates for viewing data.
- 5) Collaboration with students to fill in the database.

This element of the course can be effectively used for organizing and accessing data, for joint work of students, elements of research activities. It enables participants to create, maintain and search a bank of record entries.

The Assignment element allows the teacher to set tasks that require students to respond in electronic form (in any format) and makes it possible to upload it to the server. Depending on the setting of the task the assignment assumes a creative response from students.

The Wiki tool makes it possible for students to collaborate in making documents. Any course participant can edit wiki articles. All edits to wiki articles are stored in the database, you can query any past version of the article or compare the difference between any two past versions of articles using the link “Recent edits”. Using the Wiki toolkit, learners work together to edit a single wiki article, update and change its content. The editor built into the Wiki allows participants of the course to insert tables, figures and formulas into the text of an article. The MOODLE learning management system can include twelve different wiki editors, depending on how you set up your group work. In teamwork, the teacher using the “History” function can track the contribution of each participant in the creation of an article and evaluate it.

## 5 Conclusions

The creative development of students, on the one hand, is largely determined by the creative potential of the teacher. It is his/her professional and personal qualities, the art of building communication, the initiative in organizing cognitive and social activities and the ability for tireless professional improvement that provide students with an example to follow. Awakening in a person his/her creative potential is the most difficult practical task. On the other hand, modern students are active participants of the process of education. That is why students’ creative self-development plays a crucial role in the modern educational context. The development of the creative potential of students is based on the principles of universality, justice, humanization, integrativity, subjectivity, productivity, etc.

The latest technological advancements and steps towards building up a digital economy increase the role of mind power and creativity and require their development through digitalization of education. Today universities bring about all the necessary conditions for the creative self-development of students making use of their digital platforms and e-learning systems.

The problem of creative self-development of the teachers-to-be was of particular interest in this article. The discussed elements of the MOODLE learning management system (Forum, Glossary, Database, Assignment and Wiki) lead to activating, projecting, correcting the creative self-development of students. The above-mentioned principles are interrelated and condition each other. Their interplay serves as a basis for the succession of the suggested elements of the MOODLE learning management system while teaching the topic “Travelling” within the course “Oral and Written Practice of the English Language”. The discussed elements contribute to the cultivation of students’ creative abilities such as to design, assemble, construct, conjecture, develop, formulate, author, investigate which constitute the creative potential of an individual.

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