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Abstract - **Ever since they first appeared, Learning Management Systems (LMS) have had an important role in higher education. Their role has proven to be of extreme importance in the teaching of the English language for Specific Purposes (ESP). The reason behind their importance lies in the fact that they help activate the six levels of the cognitive domain in Bloom's taxonomy, which then facilitates and enhances the process of language adoption for non-native speakers. As the article deals with the adoption of ESP in higher education, the emphasis is on the students' acquisition of vocabulary, which paves the way for them to enter the world of their chosen profession beyond the borders of their native language. We have thus narrowed down the area of our interest to three LMS activities connected to the ESP vocabulary acquisition – *Glossary*, *Hot Potatoes*, *Wiki*. Nowadays, students at various engineering departments use LMS in their ESP courses, and hence, a case study approach has been examined in terms of their use of the above-mentioned activities and the advances students procure with the help of the system.**

Keywords - *LMS, ESP, e-learning, higher education, Bloom's taxonomy*

I. INTRODUCTION

As it has already been discussed, in order to fulfill its mission of educating competent professional personnel for the needs of the real economy, University North implemented Moodle, an open-source Learning Management System [8], which is one of the most successful and widely used e-learning systems in higher education. Moodle has been implemented by 230 countries, resulting in nearly 150 million users all over the world [1]. As the youngest public university in the Republic of Croatia which has in the previous years introduced a number of departments belonging to the area of Technical Sciences, University North constantly needs to follow the swift technological advances in computer-aided teaching in order to provide its students with the best possible learning environment [7]. This has proven to be of vital importance for the courses dealing with English for Specific Purposes. Students of Technical Sciences are faced with a double challenge. They not only have to acquire the knowledge of their chosen profession and follow the technological advances of their profession, but

they also have to have good knowledge of the English language if they want to be competitive on the ever-expanding market. Apart from grammar, which is the foundation upon which other language skills are built [3], vocabulary should not be pushed to the background. Moreover, it should be noted that with the help of the Moodle platform, the processes behind vocabulary acquisition "awaken" the cognitive domains established according to Bloom's taxonomy. That is the case due to the fact that Moodle activities force students to activate the complex cognitive levels present in their brains, from knowledge to evaluation. Due to its functionality and intuitive user interface, Moodle can be satisfactorily used with just the course page and the most accessible activity types such as Resources and Assignments [5], but there is a myriad of other features that can be used to help students get acquainted with the various facets of the English language. Based on our previous research [8], in this study we have decided to narrow down the area of our interest to three LMS activities we believe best enable the ESP vocabulary acquisition – *Glossary*, *Hot Potatoes*, *Wiki*. We therefore took into consideration several case studies which examine the students' acquisition of the English language with the help of the above-mentioned activities. Moreover, we also examine the advances the subjects of those case studies believe to have procured with the help of the system. Since University North consists of many engineering departments, such as the Department of Civil Engineering, the Department of Electrical Engineering and the Department of Mechanical Engineering, we believe that by introducing those three Moodle activities, along with the ones already in use, and which we will discuss further in the paper, students will greatly advance in their overall language competences, but especially in their ESP vocabulary acquisition.

II. MOODLE ACTIVITIES AND BLOOM'S TAXONOMY

As multi-faceted as Moodle is, simply using Moodle will not make a course better by itself; only by applying effective educational practices can teachers truly leverage the power of Moodle [7]. At the University North, as it has been stated, Moodle is actively used, but its features, i.e. activities, have not been used to their fullest potential. There are 2200 enrolled students at the University North and 752 active Moodle courses.

TABLE 1. MOODLE USAGE STATISTICS AT THE UNIVERSITY NORTH (2018)

Moodle activity	Instances
Assignment	800
Database	10987
Forum	856

From Table 1, it can be seen that generally, the three most frequently used Moodle activities at the University North are the Assignment, Database and Forum. In all

courses, including the ones dealing with English for Specific Purposes, these three activities have been and still are the dominant ones. Before further discussing the benefits of the three most commonly used activities, it is important to identify the six levels of the cognitive domain as categorized by Bloom's taxonomy. They are a very important feature of ESP teaching outcomes and one of the bases behind our choice of the three LMS activities we perceive as the most closely related to the ESP vocabulary acquisition. The following Table gives a synoptic overview of the six levels within the cognitive domain, from the lowest level to the highest level [8].

TABLE 2. COGNITIVE DOMAINS ACCORDING TO BLOOM'S TAXONOMY

Knowledge	define, list, name, order, recognize, relate, recall, repeat
Comprehension	classify, discuss, explain, identify, indicate, report, review, select
Application	apply, choose, demonstrate, sketch, solve, use, write
Analysis	analyze, calculate, compare, contrast, discriminate, examine, experiment
Synthesis	assemble, construct, create, design, develop, formulate, prepare, propose, write
Evaluation	assess, attach, choose, compare, predict, rate, select, evaluate

Assignment is a refreshingly simple method for collecting student work [7]. It is given out by the teacher who sets a deadline for the students to submit their work. Finally, the teacher grades the submitted work and it is usually followed by feedback. Generally speaking, the very fact that students have to carry out a certain written assignment develops their language skills, but in a much less interactive way than it is the case with other Moodle activities, especially when it is set up as a Peer-Reviewed Assignment, where students participate in the role of teachers by giving their input in the work of their colleagues by correcting their mistakes. According to Bloom's taxonomy, the cognitive domains employed by the Assignment activity are Comprehension, Application, Analysis, Synthesis, and Evaluation.

The second most used Moodle activity at the University North is the Database, which provides a tool for collaborative development within the course [7]. Basically, everyone enrolled in the course can share data with each other and use that data for learning. The reason why the Database module is a great tool for teachers of ESP lies in the fact that there is no limit to its potential uses – it can be used to create glossaries, catalogues, taxonomies, registrations, maps, anything students can fill in to form data [7], and consequently, make use of their previous language knowledge and further develop their new knowledge. The cognitive domains awoken by this activity according to Bloom's taxonomy include Knowledge, Application, Analysis, Synthesis and Evaluation.

Finally, the third most used Moodle activity at the University North is the Forum, which is a powerful communication tool within a Moodle course, because it is a primary tool for online communication [7]. It can be said that it establishes the social component of the course. Students can communicate with the teacher and, what is even more important in terms of language acquisition, they can communicate with each other – they can ask each other questions and answer them [9] and thus get the help they need when dealing with the course's content. The reason why Forum is an important asset in ESP courses lies in the fact that by giving students the option to discuss certain ideas with other students in their second language, in this case English, the teacher enables them to thoroughly think of what they wish to express and they can then take time to write down their thoughts, without the feeling of being pressured, which often happens in face-to-face communication. Communication on the Forum is asynchronous [7], allowing them to open a dictionary or a glossary, find various options for expressing their thoughts, which is also a means of developing their skills and knowledge pertaining both to grammar and vocabulary. According to Bloom's taxonomy, the cognitive domains employed by the Forum are Comprehension, Application, Synthesis and Evaluation.

However, the three LMS activities connected to the ESP vocabulary acquisition that we mentioned in the introduction – Glossary, Hot Potatoes, Wiki – will be discussed in more detail in the continuation of the paper.

As it has already been stated numerous times before, part of becoming an expert in any field is learning the vocabulary used by practitioners [7]. By being active in a certain field of interest, you not only use the already existing vocabulary, but you come up with new terms and concepts, actively creating a new language. In order to feel as a member of the chosen community and to be given the chance to further develop the knowledge acquired during the days at the university, one of the conditions is to become acquainted with that language. This is precisely where Glossary comes in hand. Although it may appear at first as a fancy word list, it is a powerful tool for learning [7].The teachers have at their hands a variety of features to develop shared vocabulary lists which can then be further edited and enriched. One other important feature of the Glossary is that it offers the opportunity to link every word entry to the text it first appeared in during the course, i.e. the students are given both the word and its context, which is the best way for learning and adopting new vocabulary. The cognitive domains involved in this Moodle activity include Knowledge, Application, Analysis, Synthesis, and Evaluation.

Since assessment is one of the most important features of the learning process, both for the teacher and the students, tests have been introduced as the main means of assessing the students' knowledge. However, due to the Hot Potatoes activity, things can be spiced up a bit. It is one of the most complex activities in the Moodle system, requiring a lot of time and effort. It covers the testing of basically all main elements of a language, from grammar and vocabulary to reading and listening [8]. Teachers can create quizzes with different question types, randomly generate quizzes from pools of questions, allow students to re-take the quizzes multiple times and then have the

computer score everything [7], which is another bonus as immediate feedback is given to the students. The Hot Potatoes activity requires a lot of energy from the teacher in the creation process, but it also requires a lot from the students, starting from their own attention, active recognition and use of the knowledge they acquired during the duration of the course. Hence, the five cognitive domains that are involved in this activity are Knowledge, Comprehension, Application, Analysis and Synthesis.

Last but not least, the Moodle activity we have deemed as important in the ESP vocabulary acquisition is the Wiki. As its very name suggests, it is built along the lines of Wikipedia, i.e. it is a collection of collaboratively authored web pages [7]. Students are the ones who actively create and edit the web pages. To be more precise, the activity functions by allowing the students to edit the already existing page or to add more pages to it by creating links to new pages that do not exist yet [7]. Moreover, wikis are a very powerful tool because they also work on the social component of the course, teaching the students how to work together in the creation of new content, leaning onto both their own knowledge and the knowledge of their colleagues. Hence, they not only expand their own knowledge, but actively learn from others and through it, adopt the skills of working in a team. They also adopt a new set of valuable information shared with them by their colleagues. The cognitive domains that are employed by this Moodle activity are Application, Analysis, Synthesis, and Evaluation.

III.   MOODLE ACTIVITIES AND STUDENT FEEDBACK

After gathering information on the most frequently used Moodle activities at the University North, closer attention was paid to the improvements that could be made by introducing new activities. Numerous studies [5, 7, 8, 9, 10] on the use of Moodle activities have been carried out, but since this paper is primarily concerned with the acquisition of ESP vocabulary, we have narrowed down our research to the case studies dealing with the implementation and application of the Glossary, Hot Potatoes and Wiki activities, which we, as it has already been stated before, see as beneficial in the context of ESP vocabulary acquisition.

It is important to note that in the context of language courses for specific purposes, the use of groupware activities such as Glossaries and Wikis has enabled teachers to design a learning environment which allows students to asynchronously participate in collaborative tasks, sharing or jointly constructing their knowledge of specialized lexis or relevant content [2]. Hence, Glossaries are one of the best methods for a joint construction of databases which are then useful for the students both in their final exam preparations and in their future work as autonomous professionals.

A case study in terms of creating and using the Glossary for the purposes of ESP vocabulary acquisition was carried out at the Universidad de Navarra. The basic idea underlying the creation of an ESP glossary was that writing entries would help students in the revision of their knowledge of the concepts and terminology for their final

exam [11]. Another important idea behind the creation was that they would also practice giving explanations of key concepts in their second language, which is a skill important for their future professional progress [11]. However, the activity was also perceived by the authors as an important feature of the social component of Moodle, i.e. instilling the sense of team work in the students' behavioral pattern. Once the students carried out their task until the end, reaching their final goal of creating an ESP glossary which would help them in their preparation for the final exam, the authors asked them for their feedback both regarding the entire creative process and the final impact they felt the Glossary had on their ESP vocabulary acquisition. The majority of the students gave a positive feedback. They felt that the task had been useful in helping them to consolidate their knowledge of vocabulary and their understanding of difficult concepts, and that the final product had helped them to study for their exam [11]. It enriched their vocabulary, which we see as the main goal behind this activity in terms of ESP learning. Moreover, some students even commented that they had enjoyed using the Moodle activity, i.e. that they felt satisfied as it helped them create a final product which was useful not only to them, but to the class as a whole [11]. Their feeling of contentment strongly emphasizes the social component of the Glossary activity, which helps the students feel as part of the collective. However, there were certain traits of the whole process which the students perceived as negative and which should be taken into account by the teachers. Despite the clear structure of the task and the timescale in which it was expected that the Glossary be completed, some students expressed uncertainty about the quality of the colleagues' entries, which highlights the need for a firmly fixed deadline and explicit criteria for when teacher intervention is necessary in the evaluation of student contribution to the Glossary [11]. Therefore, it is important to note that it seems necessary that the final contribution to the Glossary be done by the teacher, i.e. the teacher should perform the final corrections to the terms, because that action serves as a guarantee that students will completely trust the Glossary and use it as a valuable tool for their final exam preparations [11]. Based on this case study, it can be concluded that the Glossary activity could function as a complementary part of face-to-face lectures when it comes to the ESP vocabulary acquisition. By setting up the activity within a set deadline, students are forced to carry out timely research in the target language and then use the target language in writing and later on in the adoption of terms in the target language. That complex process covers the five cognitive domains according to Bloom's taxonomy that we mentioned above – Knowledge, Application, Analysis, Synthesis, and Evaluation. It should be noted that this type of active learning approach complies with the project work envisaged in the Bologna framework for undergraduate degrees [11].

When it comes to Hot Potatoes, more and more teachers are becoming aware of the advantages this activity may have on the acquisition of ESP. However, as we have already mentioned, this is one of the most complex features of Moodle and it requires a lot of effort from the teacher in creating it. The Hot Potatoes activity is especially suited to work with cloze and multiple choice

exercises to practice grammar and vocabulary, i.e. practically all activities pertaining to the Use of English can be carried out with the help of this activity [4]. What it is also important to mention, a gamified approach can be implemented, which stimulates a greater number of students to actively participate in the activity. The majority of case studies approach the Hot Potatoes activity from the teacher's point of view. However, this is not unusual because in its essence, the effectiveness of the activity does indeed depend on the use the teacher manages to make of it. A case study carried out at the Payam Noor University showed that one of the main benefits of the Hot Potatoes activity is the tremendous increase in the extent of exposure to and interaction with the target language outside the classroom environment [6]. This activity successfully prompts students to pay attention both to the content they are reading and to the language they are adopting, which awakens the various cognitive domains of Bloom's taxonomy mentioned in the text above. The case study comes to the logical conclusion that if the Hot Potatoes activity is successfully combined with appropriate content and motivated learners, ESP learning will be highly facilitated [6]. The main issue of the activity in terms of vocabulary acquisition lies in the fact that the program is limited to a one-way production, i.e. teachers produce tests which students then solve, as opposed to the Glossary and Wiki activity, which directly and interactively engage the students in terms of language production. Since the emphasis is primarily on the teachers and their acquisition of the activity's technical aspects, there is a lack of case studies dealing with the students' perception of the activity and their feedback on it. The idea suggested by many researchers is that the future editions of the activity should try to focus on an additional possibility of learners' independent use of this activity, which would be greatly beneficial to the ESP vocabulary acquisition.

As far as the Wiki activity goes, the process is in fact very similar to the Glossary activity. Emphasis is yet again on the social component of Moodle, i.e. Wiki is a collaborative activity which functions only if all students are included in the creation process. A case study carried out at the Balıkesir University concluded that the Wiki activity plays a major role across the entire spectrum of the Use of English. Wikis encourage learners to enhance inquiry learning and critical thinking; but most importantly, Wikis facilitate basic language skills and grammar and vocabulary knowledge in both integrated and isolated manners [12]. However, student participation yet again proved to be a slight issue, which brings us to the conclusion that teachers simply have to assume the role of moderators by overseeing the entire process and intervening at the end of it by checking whether everything was done correctly in terms of grammar and vocabulary use, since that gives students a certain sense of trust in the final product. Teachers should also set a firm deadline to prevent certain students from not doing their job in time and hence failing the class as a whole. Wikis are a learner-centered environment in which learners construct their knowledge with the help of their colleagues and teachers as facilitators [12].

As it can be seen from the case studies and student feedback, Moodle activities are an essential component of the ESP learning process. Moodle is a very powerful technological tool which can, if approached correctly, be of great value to language teachers. As important as face-to-face lectures are, the blended learning method offers many new possibilities in the development of the students' skills and knowledge. However, it should be noted that the role of the teacher is indispensable [8], whether in terms of creating an interesting Hot Potatoes quiz or simply in terms of moderating the Glossary activity. Student feedback also gives teachers a very important and valuable insight into their perception of various activities when it comes to the ESP vocabulary acquisition. At the beginning of our study, we believed that the Glossary, Hot Potatoes and Wiki activities would be the best ones when it comes to ESP vocabulary acquisition. According to case studies, that was first and foremost the case with the Glossary activity, while the Hot Potatoes and Wiki activities, while indeed helping the students with their vocabulary acquisition to an extent, also have certain setbacks which influence both the final product and the students' attitude towards the activity. Teachers must be very careful when it comes to their role in the entire process, because as autonomous as students are in their use of Moodle activities, certain boundaries must be set, especially the ones pertaining to the timeframe in which the students have to finish their tasks since the entire class depends on every individual in the process. Moreover, teachers must be aware of the importance of interactivity, which is one of the crucial factors in ESP acquisition.

IV. CONCLUSION

In the ever-expanding competitive market, in order to become an invaluable asset in the chosen profession, students must, apart from the knowledge they acquire of their profession during their university days, render their knowledge of the English language, or to be more precise, of the English used for Specific Purposes. During their formal education, their teachers take on the role of introducing them to the ESP language learning world, and it is of vital importance that teachers be aware of the role vocabulary plays in this process. At the University North, which consists mostly of departments belonging to the area of Technical Sciences, teachers use Moodle as a supplement to face-to-face lectures. Apart from the standard Moodle activities such as the Assignment, Database and Forum, ESP teachers at the University North wish to expand the number of Moodle activities by using the activities such as the Glossary, Hot Potatoes and Wiki. When examining the case studies already conducted in terms of the three mentioned activities and ESP acquisition, our belief that the introduction of new activities would help students in their ESP vocabulary acquisition proved to be correct, with a slight exception in the case of the Hot Potatoes activity. The mentioned activities give teachers a great possibility to help their students become better at ESP learning, all the while being on a par with the swift ICT advances in the world of higher education.

In this light, this paper can be perceived as a framework for carrying out a case study of implementing

the above-mentioned Moodle activities in ESP courses at the University North, where many engineering departments operate.

REFERENCES

[1] Moodle.net, Moodle statistics. Available at https://moodle.net/stats/ (Accessed 21 January 2019)

[2] A. Bocanegra and M. Perea, "ICT-based Instruction for Specialized Vocabulary Development" in Technological innovation in the teaching and processing of LSPs: Proceedings of TISLID'10, Madrid: Universidad Nacional de Educación a Distancia, 2010, pp. 55-68.

[3] A. Kaharuddin, The Communicative Grammar Translation Method: An Integrated Method of CLT and GT for Teaching English Communicatively and Accurately. Cyprus: Trust Media Publishing, 2013.

[4] F. Arcos, P. Ortega and A. Amilburu, "Learning English through and LMS, Face-to-Face Lectures and the Resulting Blend" in the Proceedings of the International Conference ICT for Language Learning, Italy, 2009.

[5] G. Bateson, "Intermediate Moodle: Ideas for Language Teachers" in The JALT CALL Journal, vol. 4, no.2, 2008, pp. 73-79.

[6] H. Soleimani and A. Raeesi, "Hot Potatoes: The Merits and Demerits" in Theory and Practice in Language Studies, vol. 5, no. 6, 2015, pp. 1291-1295.

[7] J. Cole and H. Foster, Using Moodle: Teaching with the Popular Open Source Course Management System. United States of America: O'Reilly Media, Inc., 2008.

[8] J. Lasić-Lazić, T. Ivanjko and I. Grubješić, "Using Moodle in English for Professional Purposes (EPP) Teaching at the University North" in MIPRO 2017 Proceedings of the 40th International Convention. Opatija: IEEE, 2017, pp.1021-1025.

[9] J. Stanford, Moodle 1.9 for Second Language Teaching. Birmingham: Packt Publishing, 2009.

[10] L. Pospíšilová, Z. Bezdíčková, and D. Ciberová, "English for science using LMS Moodle," in 2011 14th International Conference on Interactive Collaborative Learning – 11th International Conference Virtual University. New York: IEEE, 2011, pp. 169-171.

[11] R. Breeze, Moodle Glossary Tasks for Teaching Legal English. Switzerland: Springer International Publishing, 2014.

[12] S. Aydin, "Wikis as a Tool for Collaborative Language Learning: Implications for Literacy, Language Education and Multilingualism" in Sustainable Multilingualism, 2014. Available at: https://files.eric.ed.gov/fulltext/ED555408.pdf (Accessed 30 January 2019)