

STUDENTS' PERCEPTION AND EXPERIENCE WITH THE MOODLE PLATFORM: FINDINGS FROM A CASE STUDY AT THE DEPARTMENT OF BUSINESS STUDIES IN LESKOVAC, SERBIA

Ivana Jovanović¹, MSc

¹Academy of Professional Studies South Serbia, Department for Business Studies Leskovac, Leskovac, SERBIA, jovanovic.ivana@vpsle.edu.rs

Abstract: *As technology more and more permeates each aspect of our lives, we are facing the decision of either being left behind or embracing its advantages, particularly in the field of education. Learning Management Systems are said to be promoting principles of effective learning thus enabling students to develop multiple talents. However, the level to which an online learning tool will be beneficial depends on numerous factors one of which being its perceived usefulness (i.e. students' attitude towards a tool). This study aims to understand which factors affect students' positive attitude towards Moodle LMS and if there exists a positive correlation between the use of language learning technology and students' acceptance of Moodle LMS. Furthermore, the study proves that positive Moodle LMS experience is associated with students' assertive attitude towards future attendance to language learning courses with extensive use of digital technology.*

Keywords: *Moodle LMS, online learning, students' attitude, usefulness, technology acceptance*

1. INTRODUCTION

Internet technology has become an integral part of our everyday lives even before the outbreak of COVID-19 pandemic. It was in 2019. and 2020. that we fully realized the importance of understanding and properly integrating digital technology in the learning process. World Economic Forum reports an astounding number of 1.2 billion children worldwide referred to online learning platforms [1]. Since the mid of March (and in many countries even earlier) 2020. educational institutions across Serbia were closed down to prevent the spread of the COVID-19. Students across the country were asked to take active participation in courses being realized via various learning management systems, online communication tools such as Zoom, Skype, Google Meet, Google Classroom, Viber, etc. Serbia also opted for TV instruction in combination with online teaching sessions realized via the mentioned online communication tools. Numerous research are now being conducted to measure the effectiveness of this fully-online teaching practice and understand students' perceived usefulness of various platforms through which they have been communicating with their teachers and obtaining new knowledge. But even before the outbreak of COVID-19 pandemic, researchers have pointed out the positive and negative effects of using different learning management systems and one of them is Moodle. Moodle which first appearing in 2002, is one of the most researched open-source learning management systems particularly as it can be used free of charge. [2], [3] and many others have talked about learning management systems as one of the most important and valuable online learning tools. Namely, LMSs like Moodle, are said to be durable, adaptable, accessible, reusable which are all important for the successful and fruitful implementation of digital technology in any learning context. Course management, student work assessment, smartphone access, student progress monitoring are just some of the feature of Moodle which make it easy to use and which make it appropriate for different learning areas.

1.1. Student satisfaction with an LMS

The issue of assessing LMS technology has long represented a major challenge for many researchers.[4] discusses concept multiplicity and vagueness, lack of agreement on the main goal of LMS technology (student achievement, improved teaching process or economic gain) and lack of focus on the unique characteristics of LMS implementation and diffusion. All of these are said to obstruct a clear understanding of the main factors affecting student satisfaction with any particular LMS. [5] discusses students, instructors, technology and university as main factors to be considered when determining the effectiveness of an LMS. The idea that students' satisfaction with online learning is based on social cognitive theory, interaction equivalency theory and social integration theory is supported by [6], [7], [8] and [9]. They summarize factors

that affect the success of e-learning into 3 groups: a) student factors (prior knowledge of IT, self-motivation, learning style, etc.), b) teacher factors (teaching style, online instruction, feedback etc.) and c) technology acceptance and technical support (ease of use, ease of access, user-friendly interface, etc.). The technology acceptance model (TAM) is a well-known information system theory which elucidates factors that affect the use and acceptance of technology. Namely, this theory suggests that, when faced with new technology, several factors affect users' decision on when and how they will use this technology. The basic TAM, developed by [10] focused on two factors: perceived ease of use (PEOU) and perceived usefulness (PU). TAM 2 model, due to critics of the first model, was updated to include other, external social factors that affect a user's intention to interact with a particular technology. [11] used the TAM2 model and combined it with the model of factors affecting the perceived ease of use to create a TAM 3 which proposes three new relationships: Experience moderating the relationship from Computer Anxiety to Perceived Ease of Use, Experience moderating the relationship from Perceived Ease of Use to Perceived Usefulness, and Experience moderating the relationship from Perceived Ease of Use to Behavioral Intention.

A properly designed technologically permeated learning environment is said to have positive effect on learning behavior modification making students more susceptible to digitally enhanced learning including learning of foreign languages ([12], [13]). The use of Moodle is further said to be beneficial to students' language skills as it facilitates language learning in terms of improvement of all four language skills, students' confidence and motivation as well as their attitude towards English language learning ([14], [15]). [16] state that interest in online learning increases with students who are involved in learning English language via Moodle platform. [17] provides evidence on the positive effect of the usage of learning management systems on English language learning. This study, relying on the above explained models, tries to understand the relation between the use of language learning technology and supportive attitude towards Moodle LMS as well as the relation between positive Moodle LMS experience and students' change of attitude in terms of attending language courses with „heavy“ use of digital technology.

2. METHODOLOGY

The current study used the descriptive survey method. Students were asked to fill out an online questionnaire at the end of their first semester (January 2021). 88 students (59,1% female and 40,9% male respondents) with the average age being 19.21 years) answered 24 questions out of which 22 questions were close-ended and 2 questions were open-ended asking students to provide reasons for learning English language and stating which 3 online tools do they commonly use to learn English language. The questionnaire was divided in 3 sections. The first section collected background information on the students including their perceived level of English language knowledge and their motivation in relation to learning English language. The second section investigated students' social and academic uses of digital technology. Third and final section investigated students' attitude towards perceived ease of use, perceived usefulness and attitude towards Moodle. Respondents had to use a five-item Likert scale with 1 representing 'strongly disagree' and 5 representing 'strongly agree' to indicate their level of agreement with various statements relating to the Moodle LMS. The questionnaire was distributed through Moodle platform and e-mail to students attending English language for tourism and hospitality 1 course.

2.1. Aim of the study

Understanding factors influencing students' positive attitude towards Moodle LMS as an online learning tool.

2.2. Objectives of the study

To understand whether students' use of language learning technology is associated with a high level of supportive attitude towards Moodle LMS.

To understand whether positive Moodle LMS experience is associated with students' readiness to attend an English language course with extensive use of technology.

2.3. Hypotheses of the study

1. Extensive use of language learning technology is associated with a high level of supportive attitude towards Moodle LMS.
2. Positive Moodle LMS experience in terms of improvement of English language knowledge is associated with students' readiness to attend an English language course with extensive use of technology.

2.4. Sample of the study

The population of the study consisted of 88 first year students of the Department for Business Studies Leskovac, Academy of Professional Studies Leskovac. The participation in the study was voluntary. 88,6% of participants reported using Moodle LMS for the first time as opposed to 11,4% who stated having used Moodle LMS previously.

2.5. Techniques of data analysis

The obtained results were analyzed using statistical techniques such as percentage, mean, standard deviation, χ^2 test, Pearson's chi-squared test using IBM SPSS Statistics 20. To determine the critical value of χ^2 test we used the form $\chi^2_{(r-1)(s-1); \alpha}$, as well as corresponding statistical table.

3. RESULTS AND DISCUSSION

The first part of the questionnaire addressed the questions related to students' perceived level of English language knowledge and reasons for learning English outside the formal educational setting. 39.77% of students reported having elementary knowledge of English language, 43.18% intermediate knowledge and 17.04% of students reported having an advanced knowledge of English language. When it comes to reasons for learning English language Table 1 presents a summary of the students' answers:

Table 1: Students' reasons for learning English language

Reasons for learning English language	Number of students
Enhancing the current level of English language knowledge for business purposes	31
Easier communication with people coming from different countries	18
Participations in practical training/exchange programs	15
Love for languages, learning about different cultures	6
Language distribution (universal language)	5
Travelling purposes	7
To pass the faculty exam	6

The greatest number of students stated that their main reason for learning English language is related to future employment, believing that the knowledge of English language will be helpful in occupying positions with better pay and additional benefits (both in Serbia and abroad). Knowing that practical training programs (and exchange programs) mostly aim at increasing the level of students' practical skills (also considered very important in increasing students' competitiveness on the labor market) we can say that the main motivation behind learning English is related to easier and faster employment once the students graduate from the faculty.

The second section investigated students' social and academic uses of digital technology. We asked students to share what digital devices they own and use in their everyday life. The following chart represents the obtained answers:

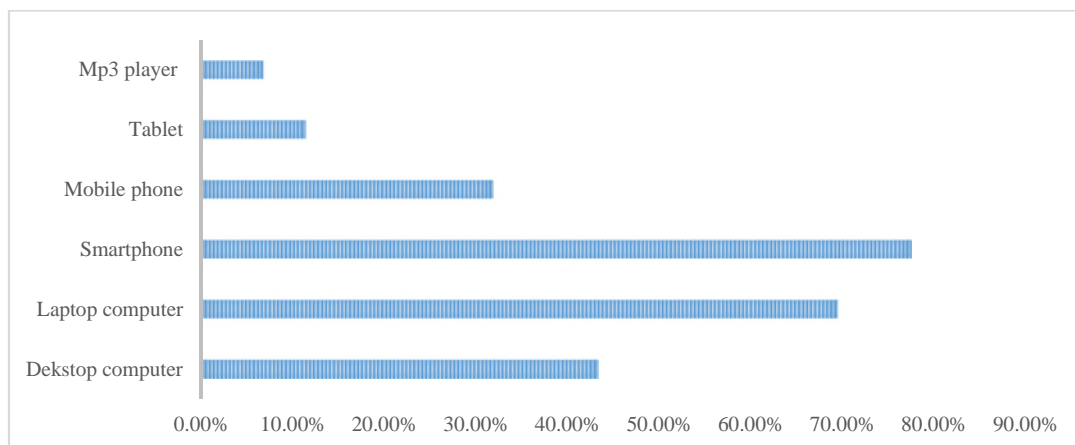


Figure 1: Digital devices that students currently own and use

None of the students opted for the remaining option of not having any of the provided devices, which shows that students were able to access the Moodle LMS from at least one digital device. We further investigated students' use of digital devices (excluding smartphones) for non-academic purposes asking them to state how many hours (on a weekly level) do they spend conducting activities that are not related to learning or performing any type of school-related activities. The majority of students spend 1-2 hours on a weekly basis using digital devices for non-academic purposes (28,4%), 3-5 hours (22,7%) 6-10 hours (17%) and more than 10 hours (9%). 12,5% of students responded using only smartphones for non-academic purposes and 10,2% stated using digital devices for non-academic purposes less than an hour on a weekly basis. In order to understand the full extent of students' weekly usage of digital devices we asked them to provide answers related to the time spend on using digital devices for academic purposes. Table 2 shows the obtained answers:

Table 2:Time students spend using digital devices for academic purposes

	Making Excel tables	Preparing presentations	Making and editing audio/video materials	Making and editing photo materials
Do not use	34	17	42	32
Below 1 hour	35	25	17	26
1-2 hours	12	27	15	17
3-5 hours	4	11	8	5
More than 5 hours	3	8	6	8

The data show that only 3,4% of students spend more than 5 hours using their devices to work in Microsoft Excel, 9,09% to prepare presentations, 6,8 % to make and edit videos and 9,09 % to make and edit photo materials.

Students were asked to provide information on time spend weekly using digital devices to study English language: the obtained results show that 30,7% of the students spend less than 1 hour learning English with the help of a digital device, 34,1% between 1 and 2 hours, 13,6% between 3 to 5 hours and 4,5% more than 5 hours weekly. 3,4% of students stated that they don't spend any time using digital devices to study English on a weekly level.

We additionally asked students to write down 3 mostly used websites (online tools) for language learning – the most common answers were Google, Quizlet, Netflix, Youtube, Instagram, Duolingo, Babbel and British Council. 23 out of 88 students responded not using any website or any digital tool besides Moodle (attending the online English language course on this platform). In relation to the above mentioned Quizlet language learning app, the majority of students (79,5%) stated that prior to attending the English language course on the Moodle platform, they haven't used Quizlet . In line with these results it was important to understand if students' experience with Moodle LMS will be motivating in terms of applying additional online language learning tools which would further enhance their English language knowledge.

The third and final section investigated students' attitude towards perceived ease of use, perceived usefulness and attitude towards Moodle. Respondents had to use a five-item Likert scale with 1 representing "strongly disagree" and 5 representing "strongly agree" to indicate their level of agreement with various statements relating to the Moodle LMS. The statements for this part of the study were prepared on the basis of TAM (technology acceptance model) proposed by Davis which is based on two beliefs: perceived ease of use and perceived usefulness. The results for descriptive statistics for all statements related to students' attitude are provided in the following table:

Table 3:Descriptive Statistics

Statements:	N	Mean	Std. Deviation
Moodle can be easily accessed	88	3,47	1,406
Moodle is fast and reliable	88	3,11	1,326
I can easily express my opinion in the Moodle classroom	88	3,00	1,259
I can easily communicate with the teacher in the Moodle classroom	88	3,15	1,318
Moodle is eye-appealing and the navigation is fast and easy	88	3,27	1,248
I can easily access the materials uploaded in the Moodle classroom	88	3,57	1,388
The use of Moodle has been beneficial for my computer-related skills (technical skills)	88	2,85	1,466
The use of Moodle has been beneficial for my English language knowledge	88	2,59	1,171
I experienced difficulties in using Moodle	88	2,40	1,402

We can see that the highest level of satisfaction is related to the access to materials posted on the Moodle platform (m=3,57), followed by access to the very platform (m=3,47) and teacher-student interaction (m=3,15). The lowest score is found for the statement "I experienced difficulties in using Moodle" meaning that students weren't facing a great deal of technical difficulties related to the use of Moodle platform.

3.1. Testing of hypothesis 1

X² data analysis shows that there is a dependency between answers to provided statements measuring the level of satisfaction with Moodle LMS and use of language learning technology.

Table 4: Data analysis - χ^2 test – Use of language learning technology and supportive attitude towards Moodle LMS

df 8 $\alpha=0,05$ $\chi^2_{(r-1)(s-1); \alpha}=15,507$	Pearson Chi-Square Value	N of Valid Cases	Sig. (2- tailed)
I can easily access the materials uploaded in the Moodle classroom	23,944 ^a	88	0,245
Moodle is fast and reliable	38,723 ^a	88	0,007
I can easily express my opinion in the Moodle classroom	43,188 ^a	88	0,002
I can easily communicate with the teacher in the Moodle classroom	32,887 ^a	88	0,035
Moodle is eye-appealing and the navigation is fast and easy	31,899 ^a	88	0,044
The use of Moodle has been beneficial for my computer-related skills (technical skills)	34,787 ^a	88	0,021

The analysis of obtained data leads to a conclusion that extensive use of language learning technology is associated with a high level of supportive attitude towards Moodle LMS.

3.2. Testing of hypothesis 2

Positive Moodle LMS experience in relation to increased level of English level knowledge is associated with students' readiness to attend an English language course with extensive use of technology.

Table 5: Chi-Square Tests

df 16 $\alpha=0,05$ $\chi^2_{(r-1)(s-1); \alpha}=26,296$	Value	df	Asymp. Sig. (2- sided)
Pearson Chi-Square	38,493 ^a	16	,001
Likelihood Ratio	39,899	16	,001
Linear-by-Linear Association	2,025	1	,155
N of Valid Cases	88		

a. 16 cells (64,0%) have expected count less than 5. The minimum expected count is ,16.

Table 6: Symmetric Measures

	Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Interval by Interval Pearson's R	-,153	,128	-1,432	,156 ^c
Ordinal by Ordinal Spearman Correlation	-,165	,123	-1,551	,124 ^c
N of Valid Cases	88			

χ^2 data analysis shows that there is a dependency between the perceived usefulness of Moodle LMS in terms of improving students' level of English language knowledge and their readiness to attend an English language course with extensive use of technology. The results of the Pearson-Correlation coefficient and Spearman Correlation show a low inverse correlation.

3.3. Study limitations

This study was conducted among first year students attending two out of five study programs at the Department for Business Studies in Leskovac. Further study should aim at involving a greater number of students from all study programs. Furthermore, as the study was conducted amidst the COVID-19 crisis during which students were “forced” to use technology in their everyday practice of learning, it would be useful to understand students’ attitude towards Moodle LMS as an online learning tool in situations in which students aren’t under an obligation to use it in order to receive a passing grade. As a great number of students participating in this study reported having and using a smartphone, future study should specifically focus on the use of these particular devices in accessing language learning materials and online language learning tools.

3. CONCLUSION

Student participation in Moodle-mediated courses is said to be beneficial in encouraging students to seek additional, digital resources and is said to contribute to the enhancement of foreign language skills, communication skills, technological literacy, learning motivation and overall better performance in the subjects that are being taught via Moodle LMS. Furthermore, students become self-directed learners, collaborative and cooperative which ultimately leads to an increase in the level of knowledge in a particular area [18]. The results of the conducted research show that learners perceive Moodle to be advantageous to them; moreover, the study shows that students who use language learning tools more often have a better response to Moodle LMS and show a higher level of its perceived usefulness and ease of use. In relation to the previously stated finding, another finding of the conducted research shows that students’ perceived advancement in foreign language skills obtained via Moodle LMS language course has stimulative effect on accepting additional technology-mediated language courses. As numerous research comparing traditional and e-education courses show greater effectiveness of e-education courses, educational communities should strive to educate students on benefits of this form of teaching. Students taking part in this particular research can be said to be still rather conservative when it comes to implementing advanced technological solutions in their academic (linguistic or any other) learning context. In order to avoid slowdowns in the learning process and having in mind the situation like the COVID-19 pandemic which stressed the importance of implementing technology in the educational system, we must strive to motivate students to transform into active, independent learners (instead of passive receptors) and thus overcome any possible doubts or fears that might occur when adopting new technology.

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