

# Effectiveness of the Moodle System in Acquiring the Academic Skills of Students

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Strokovni članek

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**KLJUČNE BESEDE:** sistem Moodle, tehnološke posledice, akademske spretnosti, inovativne metode v procesu učenja in poučevanja

**POVZETEK** – Sistematično uvajanje e-učenja prispeva h kakovosti visokošolskega izobraževanja, ki temelji na učnih rezultatih, s študenti v središču izobraževalnega procesa, pa tudi razvoju ustreznih inovativnih metod poučevanja in učenja, ki lahko dvignejo motivacijo študentov za študij, razvoj akademskih veščin ter ustvarjalnih in raziskovalnih del. Trg dela se nenehno spreminja, prav tako pa tudi potrebne spretnosti, sposobnosti in kvalifikacije. Tako študenti z razvojem veščin pridobivajo in razvijajo svoje življenjske in poklicne kompetence, zavzemajo svoje mesto v družbi in postanejo konkurenti na trgu dela. Akademске spretnosti so potrebne, da lahko študentje uspešno zaključijo študij, ustvarijo kariero in so sposobni vseživljenjskega učenja, delujejo na trgu dela in imajo motivacijo za razvoj podjetniškega učenja. Raziskava ugotavlja, katere kategorije akademskih veščin se pri učencih najbolj razvijajo z uporabo sistema Moodle pri poučevanju. Glavni cilj te raziskave je prikazati odnos študentov pedagogike na Filozofski fakulteti v Osijeku do uporabe sistema Moodle.

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**KEYWORDS:** Moodle system, technological consequences, academic skills, innovative methods, learning and teaching

**ABSTRACT** – The systematic introduction of e-learning contributes to the quality of higher education and is based on learning outcomes, with students in the center of the educational process; the development of appropriate and innovative teaching and learning methods, which can stimulate student motivation for learning; and academic skills development and creative and research work. The labor market is constantly changing, as are the skills, abilities and qualifications required. Academic skills are necessary for students to successfully complete their studies, build a career, be capable of lifelong learning, enter the labor market, and be motivated for developing entrepreneurial learning. The research will determine which categories of academic skills are most developed by students while using the Moodle system in their classes. Thus, the main purpose of this research will be to show the attitudes of students of Pedagogy at the Faculty of Humanities and Social Sciences in Osijek, according to the use of the Moodle system in teaching.

## 1 Introduction

We live in a fascinating time which shows a swift progress in technology and an information revolution, during which it is necessary, now more than ever, for each individual and for the entire society to continuously and quickly adjust to any changes. Knowledge derived from the STEM fields (Science, Technology, Engineering and Mathematics) turns the wheel of change soaring on the wings of technological progress. Any society which does not want to remain on the margins of progress in the modern world must understand the importance of investing in STEM disciplines because the key to the progress of every country and nation lies in them. Nowadays, we are witnesses of an invisible hand of the market which simply erases the traditional industries and

businesses which did not know how to or did not want to adapt to new circumstances and realities. For those reasons, it is crucial to become aware of the importance of connecting e-entrepreneurial learning and encouraging the development of academic skills within the limits of a new age of e-learning (Nadrljanjski, Nadrljanjski & Bilić, 2007).

Higher education could be seen as a focal point of knowledge and its application; an institution which makes a great contribution to economic growth and development through fostering innovation and increasing higher skills. It is viewed as a way to improve the quality of life and address major social and global challenges. Higher education is broadly defined as one of the key drivers of growth performance, prosperity and competitiveness, especially for eastern Croatia, i.e. the Slavonia-Baranja County. UNESCO says its social role provides the link between the intellectual and educational role of universities on the one hand and the development of society on the other. Enhancing skills holds the key to higher living standards and well-being. Investing in knowledge creation and enabling its diffusion is the key to creating high-wage employment and enhancing productivity growth. Here is an overview of the most important roles of higher education in today's economy:

- creating a quality workforce,
- supporting business and industry,
- carrying out research and promoting technologies.

Higher education is a technology and innovation driver. One of the missions of modern universities is to find solutions to big challenges and to conduct research within global priority areas, contributing to social outcomes such as health and social engagement. It is often aimed at designing technologies that result in new products and supplying advanced technology for use. It is for these reasons that people are being made aware of the impact of new e-learning platforms such as the Moodle system.

E-learning systems play an important role in education and are almost indispensable in today's education and the development of entrepreneurial learning. It has been proven that the quality of teaching in educational institutions with implemented e-learning solutions rises significantly compared to a traditional approach to teaching (Prensky, 2001). There are several advantages that e-learning brings as a part of the education system, primarily flexibility, easier access to information, increased interaction and motivation among students (Arkorful, 2014, Lasić-Lazić, 2014). A consequence of the implementation of IT technologies in everyday life is a transformation from an industrial to an information society which is becoming a society based on knowledge. Using e-learning as a complementary teaching method, a widely accepted blended learning model (Singh, 2003) is successfully achieved, through which learning methods are improved and entrepreneurial learning sources are expanded especially among students attending faculties of teacher education. The e-learning system enables, in many ways, the advancement of the teaching process, i.e. the learning and teaching methods.

### *The significance of the Moodle system for furthering academic skills*

By analyzing the processes which develop in higher education, the key elements that are carried out as part of the e-learning system are distinguished, such as implementation, i.e. the introduction of the Moodle system to higher education institutions. A key change comes from the need to redefine the education system as a whole. Old

education paradigms are becoming inefficient in the modern world of innovations for which we need to prepare our younger generations from an incredibly young age (Eisenberg, 2008).

The labor market is constantly changing, thus also changing the necessary skills, capabilities and qualifications. Academic skills are necessary for students to successfully finish their studies, build a career, become capable of lifelong learning, enter the labor market, and be motivated for the development of entrepreneurial learning. The topic of this study arose out of those reasons, namely to indicate the significance of a purposeful connection between e-learning, academic skills and the influence of the Moodle system on developing entrepreneurial learning to more easily integrate students into the labor market and to suppress grey economy, especially concerning the labor market of the Slavonia-Baranja County.

A new paradigm of higher education institutions which is frequently appearing in the European area and beyond is the entrepreneurial university which is entrepreneurial in every sense of the word, from the leadership and the organization of the institution, the orientation of the education process which awakens the entrepreneurial spirit in its students, the support for entrepreneurial ideas and ventures, the digital transformation of archaic processes, the efficient exchange of knowledge and cooperation, internationalization, and impact measurement. These determinants are the characteristics of future universities that redefine the purpose of universities, their goals, mode of operation, and their effect on society. This study proceeds from the basic hypothesis which assumes that the Moodle system can be used to facilitate the development of students' academic skills.

Academic skills are a set of skills that include knowledge and capabilities in the areas of listening, memorization and retention, reading comprehension, note-taking, organization and time management, motivation, teamwork, controlling test anxiety and the like. These skills are essential for students if they are to successfully finish their studies, build a career, and be capable of lifelong learning. Hardworking and active students who are prepared to invest additional time and effort to work in a team in order to successfully complete a given task have well-developed academic skills. It is exactly those qualities, such as diligence, perseverance, investment, motivation, time management and the capability to work in a team, that make them more competitive on the labor market and allow them faster employment (Boone, 2013). All this leads to the development of management skills which include conceptual skills, technical skills, social and people skills, leadership skills, planning, organization, controlling, shaping skills, etc. which can become a preventive measure against the influence of grey economy and, for ease of reference, in a world heavily dependent on the labor market. This study starts with the basic hypothesis which assumes that the Moodle system can, as a form of e-learning, help students and promote the skills which enable them to successfully achieve their goals and organizational assignments during their studies in order to successfully finish their studies in time through entrepreneurial learning.

## 2 Methodology

The research was conducted at the Faculty of Humanities and Social Sciences Osijek on undergraduate and graduate students of Pedagogy in the period from 20 November to 20 December 2019. The survey method utilized the Google Docs application in which the students filled in the survey online. A quantitative methodology was used as part of SPSS data processing. The following descriptive statistics methods were used: frequency analysis and calculation, percentage analysis and calculation, chi-squared test ( $\chi^2$ ) and the correlation coefficient (Cramer's V (pc) Coefficient). In total, 112 respondents were included, 99 % of whom were female respondents and 1 % male respondents. The average age of the respondents at the time of examination was from 19 to 23 years old. The basic descriptive data was calculated for each variable used in the study.

### *Research goal*

The research undertaken aimed to affirm which categories of academic skills were developed the most by students who were using the Moodle system during their course. Therefore, the main goal of this research is to present the results of the opinions of pedagogy students, attending the Faculty of Humanities and Social Sciences Osijek, on the usage of the Moodle system during their studies. The research attempted to gain insight into the frequency of teachers' use of the Moodle system. This research will be used not only by professors as a representation of skill development in students, so that in their future work they can work more on the development of poorly developed skills, but also by various centers dealing with lifelong education. Education raises people's productivity and creativity, and promotes entrepreneurship and technological advances. In addition, it plays a crucial role in securing economic and social progress, and improving income distribution.

## 3 Results and discussion

In this part of the study the most significant results of the research will be presented.

Table 1. Respondents' data displayed according to their dual degree

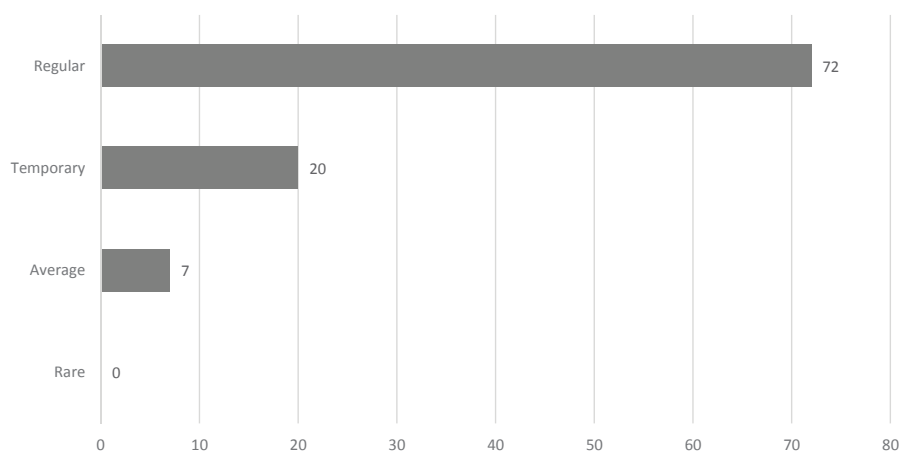
<i>Dual Degree</i>	<i>English Language – Pedagogy</i>	<i>Croatian Language – Pedagogy</i>	<i>Hungarian Language – Pedagogy</i>	<i>Sociology and Pedagogy</i>	<i>History and Pedagogy</i>	<i>N</i>
	35 %	38 %	8 %	6 %	12 %	100 %

Table 1 indicates that most students have enrolled in or study Croatian Language and Literature with Pedagogy (38 %,  $M = 0.37$ ,  $SD = 0.44$ ), followed by English Lan-

guage and Literature with Pedagogy (35 %,  $M = 0.47$ ,  $SD = 0.64$ ), then History and Pedagogy (12 %,  $M = 0.44$ ,  $SD = 0.39$ ).

A statistically significant correlation was indicated ( $\chi^2 = 139.12$ ,  $df = 2$ ,  $p < 0.05$ , Cramer's  $V = 0.19$ ) where students who study the combination of English Language and Literature with Pedagogy are more aware of the role and significance of the Moodle system for the promotion and development of academic skills compared to other fields of study. Furthermore, by testing the statistical significance, it was shown that most students believe that the Moodle system was a very important investment in education as a form of e-learning, which was important for faculties of teacher education in order to reduce the unemployment rate, at a level of statistical significance less than 1 % ( $p \leq 0.01$ ).

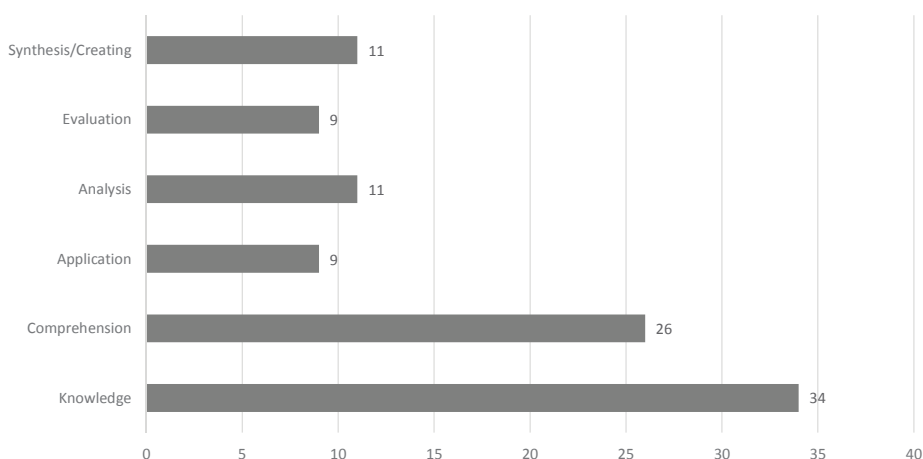
*Graph 1.* Respondents' assessment of the use of the Moodle system as part of their education during their studies



Graph 1 indicates respondents' opinions on the frequency of use of the Moodle system in teaching during their studies. Most students are thought to regularly use the Moodle system in their studies (73 %,  $M = 0.61$ ,  $SD = 0.5$ ).

A statistically significant correlation ( $\chi^2 = 149.12$ ,  $df = 3$ ,  $p < 0.05$ , Cramer's  $V = 0.017$ ) was obtained between students who realized the significance of the influence of Moodle on adopting and promoting academic skills in the study field variable; that is, students who study Croatian Language and Literature and Pedagogy are more aware that the Moodle system can help develop academic skills than are students in other fields. All of the above may be indicators that teachers in the Departments of Pedagogy and Croatian Language and Literature use the e-learning method through the Moodle system more often and thus contribute to the development of students' academic skills.

Graph 2. Review of satisfaction data (quantity and quality of information) obtained in the course provided by students from Moodle



Graph 2 indicates that the majority of students are generally satisfied (34%,  $M = 0.74$ ,  $SD = 0.6$ ) with the amount and quality of the information received in the course from Moodle. The following data refers to the respondents' opinions on certain professional competencies that they consider essential for the auxiliary professions. The data is presented in Table 2.

Active listening (paraphrasing and reflecting) (51.92%,  $M = 0.41$ ,  $SD = 0.49$ ) is very important in first place, followed by establishing a quality relationship with professors in second place (23.07%,  $M = 0.31$ ,  $SD = 0.51$ ).

A statistically significant correlation ( $\chi^2 = 127.12$ ,  $df = 4$ ,  $p < 0.05$ , Cramer's  $V = 0.13$ ) was obtained between students studying another foreign language in combination with pedagogy. Thus, students who study English or Hungarian with Pedagogy have become more aware of the role of active listening as a very important variable of assistive proficiency compared to students who do not study a foreign language.

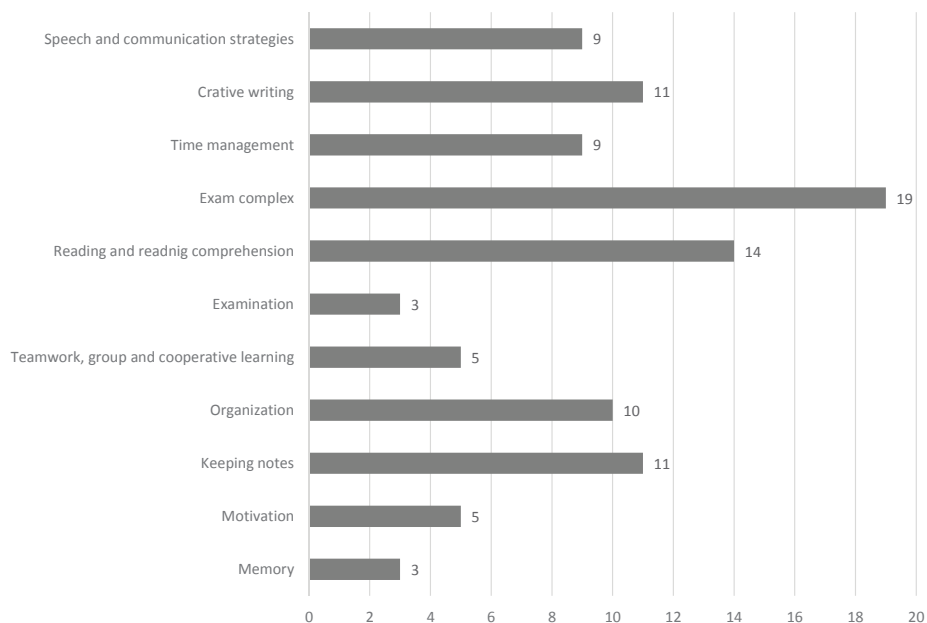
All of this points to the fact that teachers from all departments should use the Moodle system more actively to help develop students' academic skills and to realize the importance of changing educational paradigms with the help of information and communication technologies. Today, more than ever, interdisciplinarity and interconnection between professions, especially in the technical, social and artistic fields, is needed to create new values and products (Etherington, 2008).

**Table 2.** Respondents' opinions on the importance of professional competencies for the auxiliary profession

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>N</i>	<i>x<sup>2</sup></i>	<i>*df</i>	<i>*p</i>
Establishing a quality relationship with professors	17.30%	17.30%	11.53%	30.76%	23.07%	100%	14.236	4	0.051
Active listening (paraphrasing and reflecting)	5.76%	9.61%	12.50%	20.19%	51.92%	100%	19.236	1	0.032
Approaching the user with empathy and understanding	9.61%	10.57%	23.07%	15.38%	21.15%	100%	54.234	5	0.054

*Note:* An original Likert-type scale with anchors was used for each statement: 1 – strongly disagree, 2 – mostly disagree, 3 – neither agree nor disagree, 4 – mostly agree and 5 – completely agree, agree.

**Graph 3.** Respondents' self-assessment of the types of academic skills where the Moodle system assisted in their acquisition



*Note:* For each skill, students determined the degree of agreement: 1 – I totally disagree; 2 – I mostly disagree; 3 – I neither agree nor disagree; 4 – I generally agree; 5 – I totally agree.

Although technological innovations and the amount of data that surrounds us are developing at an exponential rate, humans are still, with all their biological and cultural limitations, a factor that determines how well one can follow such changes and how one will adapt to them.

Without the cooperation of STEM fields with socially oriented professions, such as economics, sociology, psychology, law and other social sciences, it is impossible to start a successful business, find a need to be solved, develop a market, and find customers and make them happy. Graph 3 indicates respondents' self-assessment of the types of academic skills where the Moodle system assisted in their acquisition.

Graph 3 indicates that 19% of students ( $M = 0.24$ ,  $SD = 0.14$ ) think that the type of academic skills the Moodle system helped develop is their Exam complex, followed by Reading and reading comprehension (14%,  $M = 0.66$ ,  $SD = 0.37$ ), and then Keeping notes and Creative writing (11%,  $M = 0.41$ ,  $SD = 0.67$ ) which were the least affected by Moodle.

A statistically significant correlation was obtained ( $\chi^2 = 147.12$ ,  $df = 3$ ,  $p < 0.05$ , Cramer's  $V = 0.21$ ) whereby students studying Croatian Language and Literature and Pedagogy were more aware of the significance of the influence of the Moodle system on the development of certain academic skills and thus contributing to the development of the economy and society. Furthermore, statistical testing has shown that most students find it very important to invest in e-learning to increase teachers' interest in using the Moodle system as much as possible in their teaching in order to develop academic skills; the statistical significance level was less than 1% ( $p \leq 0.01$ ). Furthermore, a statistically significant correlation was obtained ( $\chi^2 = 144.12$ ,  $df = 1$ ,  $p < 0.05$ , Cramer's  $V = 0.19$ ) among undergraduate and graduate students. Graduate students are more aware of the importance of connecting new technologies for development.

Changing the paradigm and role of higher education institutions towards entrepreneurship also leads to a change in the paradigm of learning and teaching (Garrison; Kanuka, 2004). Although theoretical knowledge is an important and necessary basis for training a qualified expert in any field, in today's age of rapid obsolescence of knowledge, especially in the high-tech sector, the overemphasis on theoretical knowledge alone does not properly prepare students for the challenges of an entrepreneurship-based economy.

The research also analyzed the issue of students' recommendations and their ideas for teachers in using the Moodle system. The question was open-ended and the most up-to-date answers were provided; some of them are:

- ☐ All professors should use it, not just a few.
- ☐ I'm not saying Moodle isn't good, but it bothers me that it's kind of opaque. -Professors should date their lectures, so we can print them. - Helps me prepare for the lesson.
- ☐ I think that all professors should use Moodle to make all their lectures and teaching materials accessible to all. This would make it easier for students, especially freshmen, to handle everything in one place.
- ☐ To get more teachers involved in using the Moodle system, since a number of professors are already using it and it is useful for downloading literature and the like.



- To get all teachers to Moodle and put in class materials and presentations because some professors do not use Moodle at all.
- Colloquium over Moodle.
- Use Moodle more in teaching as it helps improve learning.
- Colloquium via Moodle.
- Moodle can hold a lot of useful materials, which are not necessarily related to the required and additional literature; for example, some additional things or useful websites.
- To me personally, this is just an easier way for professors to send us materials, results, assignments, etc., but it doesn't help me acquire any competencies and skills.
- It would be helpful for teachers to update the presentations on Moodle that were processed that week so that I could revise the contents regularly.
- Moodle is a very good system, but unfortunately very few professors use it. Learning materials are mostly sent by regular e-mail. Moodle is definitely great and makes it easy for everyone.
- To use it more, because hardly anybody uses it, so I can't even say much about it.

With regard to the second problem posed in the research, an independent samples t-test was performed to determine which approach to learning is used to a greater extent by female students. The results of the t-test are shown in Table 3.

*Table 3.* Differences in using a gender-based approach to learning with Moodle

<i>Access to learning</i>	<i>Gender</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>SS</i>	<i>Relevance</i>
Frontal / traditional	female	99.0%	55.43	9.416	3.041	353	0.003
	male	1%	56.45	8.126			
Hybrid approach / Moodle	female	99.0%	57.62	7.125	-0.654	353	0.050
	male	1%	53.25	8.521			

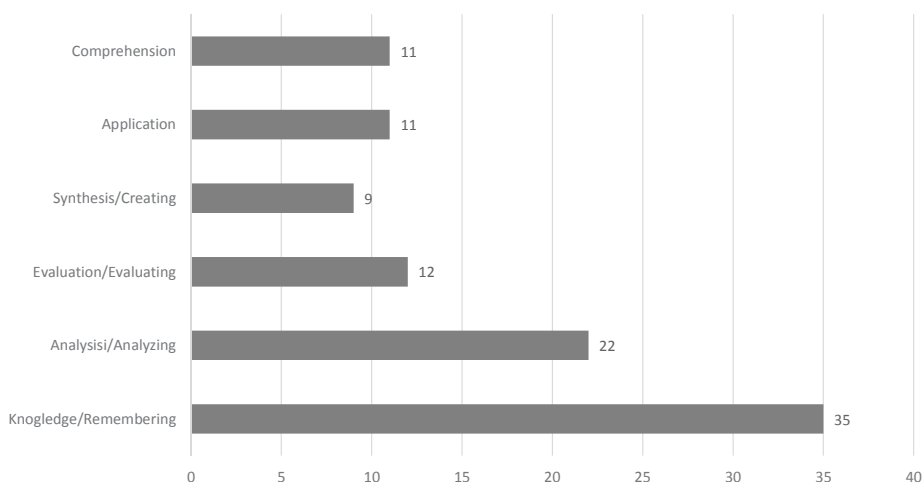
*Note:* N-number of participants, M-arithmetic mean, SD-standard deviation, SS-relevance.

Leven's test of homogeneity of variance of both variables is not significant; therefore, a homogeneity of variance of both variables can be assumed. Considering the results of the t-test, it can be concluded that there is a statistically significant difference in the application of an in-depth approach to learning among students with respect to the gender variable.

By comparing arithmetic means, it can be concluded that female students are more likely to adopt a hybrid approach to Moodle learning than male students. It must be borne in mind that the proportion of male respondents amounted to 1%. Education raises people's productivity and creativity, and promotes entrepreneurship and technological advances. In addition, it plays a crucial role in securing economic and social progress, and improving income distribution (Ozturk, 2008).

On the occasion of the forthcoming accession to the EU, efforts are being made in Croatia to stimulate the development of entrepreneurial competence as a key factor in promoting economic growth and competitiveness. Entrepreneurial competence, in addition to stimulating the growth of new businesses, influences the development of an entrepreneurial mindset and a more effective use of the creative potential of existing knowledge and skills. Therefore, the interest in educational programs that encourage and develop entrepreneurial competence is increasing, and it is through the introduction of Moodle that the basics for developing academic skills that lead to the development of entrepreneurial skills can be acquired.

*Graph 4.* Respondents' views on the impact of Moodle on the development of learning outcomes



*Legend:* Knowledge/Remembering: define, list, recognize; Comprehension/Understanding: characterize, describe, explain, identify, locate, recognize, sort; Application/Applying: choose, demonstrate, implement, perform; Analysis/Analyzing: analyze, categorize, compare, differentiate; Evaluation/Evaluating: assess, critique, evaluate, rank, rate; Synthesis/Creating: construct, design, formulate, organize, synthesize.

Graph 4 shows the results of students' opinions on the impact of the Moodle system on promoting and developing learning outcomes. Graph 4 indicates that 35% of students ( $M = 0.44$ ,  $SD = 0.64$ ) think that Moodle mostly affected the development of Knowledge/Remembering, Analysis/Analyzing (22%,  $M = 0.56$ ,  $SD = 0.71$ ) and Evaluation/Evaluating (12%,  $M = 0.64$ ,  $SD = 0.55$ ).

## 4 Conclusion

Education is the future; it is necessary to advocate for its improvement and a more frequent implementation of the Moodle system as a part of the higher education system which encourages science and its relationship with the economy. Above all, it is necessary to systematically introduce e-learning which contributes to the quality of higher education and which is founded on the outcomes of learning. Academic skills are necessary for students to successfully complete their studies, build a career, be capable of lifelong learning, find their place in the job market, and gain the motivation for developing entrepreneurial learning. The research identified which categories of academic skills were most developed in students through the use of the Moodle system in teaching. The most developed skill is short writing, followed by teamwork, group and cooperative learning skills; speech and communication strategies are in third place, followed by the critical thinking and critical analysis skills. Moodle influenced the development of the skill of time management the least. A statistically significant correlation was obtained between students studying another foreign language in combination with pedagogy. Academic success is statistically significantly positively correlated with a hybrid and strategic approach to learning. Correlations are low to moderate.

Thus, students who study English or Hungarian with Pedagogy have become more aware of the role of active listening as a very important variable of assistive proficiency compared to students who do not study a foreign language. All of this indicates that teachers from all fields should use the Moodle system more actively to help develop students' academic skills and to realize the importance of changing educational paradigms with the help of information and communication technologies. This research is important not only for the benefit of college students, but also for investing in educational centers engaged in entrepreneurial learning for the benefit of the economy. The paper has pointed out the level of skills development among students, the importance of further development of skills through the use of ICT, and the need to sensitize teachers to the use of e-learning in teaching and the introduction of expert teaching systems and other modern teaching methods based on information and communication technology. As the labor market is constantly changing, so are the required skills, abilities and qualifications. It is through the development of skills that students acquire and develop their life and professional competencies, that is, they take their place in society and become competitors in the labor market, and thus can help with the development of economies, especially in the Osijek-Baranja County, suppressing emigration and the grey economy. They can also help with the development of motivation for a major change in educational paradigms, which should be based on the STEM area. Knowledge is the true basis of higher education; its production via research, its transmission via teaching, its acquisition and use by students. Hence, excellence must remain the prime objective of any institution of higher education, including universities in any country. These institutions are focusing resources on quality education, encouraging students and taking account of students' profiles and specific needs, strengthening teacher training and exposure to best working practices, and creating incentives to attract the most experienced teachers. Clearly the educational provisions within any given country represent one of the main determinants of the composition and growth of that country's output and exports, and constitute an important ingredient in a system's capacity to borrow foreign technology effectively.

Dr. Mirela Müller, Vlasta Svalina

## **Učinkovitost sistema Moodle pri pridobivanju akademskih veščin študentov**

*Pomembna značilnost informacijske dobe je nov odnos do znanja. Za informacijsko dobo je značilno vrednotenje informacij in znanja kot virov. Informacije so bile vedno potrebne in prisotne v znanosti, izobraževanju, umetnosti, kulturi in gospodarstvu. Vendar je sprememba, ki jo prinaša informacijska doba, hitrost njihovega pretoka, razpoložljivost in povezovanje v mrežo, ki jih omogoča tehnologija. Tradicionalni sistem poučevanja je vedno bolj zastarel in novi časi zahtevajo, da poučevanje in učni proces postaneta bolj aktivna in temeljita na pridobivanju novih kompetenc, ki jih bodo študenti potrebovali za preživetje na trgu dela. V informacijski dobi ustvarjanje znanja ni več izključno povezano s formalnim okoljem, ki ga npr. predstavljajo izobraževalne ustanove. Informacijsko dobo spremlja sprememba paradigme izobraževanja, kjer se fokus preusmeri iz učitelja na učenca. V sodobni informacijski dobi ni vprašanje, ali in kdaj naj informacijsko in komunikacijsko tehnologijo vključimo v izobraževanje, ampak kako. Uspešna integracija IKT pomeni vključevanje IKT v proces učenja in poučevanja ter v poslovni proces šole. Vključevanje IKT v proces učenja in poučevanja mora upoštevati dejstvo, da današnji učenci in njihovi učitelji spadajo v različne generacijske kategorije. Za spremljanje uspešnosti integracije IKT je treba razviti merilne instrumente in opredeliti kazalnike uspešnosti.*

*IKT ponuja številne možnosti prilagajanja učnih metod posameznim potrebam študentov. Uporaba novih tehnologij v procesu učenja in poučevanja odpira nove perspektive, ponuja nove priložnosti, hkrati pa predstavlja tudi dobro motivacijsko orodje pri poučevanju in s tem spreminja vzgojno paradigmo. Ena izmed novih perspektiv in priložnosti, ki jo prinaša nova tehnologija, je zagotovo koncept učenja na daljavo prek različnih platform, kot je Moodle. Platforma Moodle je že prisotna na številnih visokošolskih zavodih Republike Hrvaške. Vse večja uporaba IKT v izobraževanju je morala pripeljati do nekaterih sprememb v šolskem sistemu. Didaktične vsebine, ki se jih naučijo z uporabo IKT, postajajo zanimivejše, informacije so študentom lažje dostopne, metode poučevanja in učenja pa vse bolj raznolike, dinamične in ustvarjalne. To je prišlo do izraza po celem svetu v trenutni situaciji, ko so se morali učitelji in učenci zaradi covida-19 čez noč prilagoditi novemu načinu učenja. Uporaba IKT v izobraževanju je privedla do spremembe pedagoških vlog učiteljev in učencev. Vloga učitelja se je močno razširila in njegov pomen za vključitev IKT v pouk je velik, najpomembnejša sprememba vloge učencev pa je v povečanju in pomembnosti njegove samostojnosti. Pandemija covida-19 je privedla do velikih sprememb, zlasti v načinu delovanja univerz. Te spremembe na visokošolskih zavodih so vidne ne le v načinu delovanja izobraževalnega okolja, ampak tudi v delovanju samih profesorjev. Vse te spremembe, zlasti potreba po vseživljenjskem učenju, so pripeljale do druge spremembe, in to je v načinu poučevanja. Hiter življenjski slog in vse večja uporaba IKT v izobraževanju sta pripeljala do razvoja izobraževanja na daljavo in e-učenja (engl. e-learning). To je situacija s covidom-19 tudi pokazala in dokazala.*

*Izobraževalni sistem bi nas moral že od malih nog učiti, kako se spoprijeti s temi izzivi in kako uporabiti tehnologijo, ki nam je na voljo za premagovanje vseh ovir; s katerimi se bomo spoprijeli. A pogosto se zgodi, da tudi sami učitelji niso dovolj seznanjeni z možnostmi, ki nam jih ponuja tehnologija. Učitelji se pogosto soočajo s težavo pri izbiri tehnologije, ki bo na koncu olajšala, pospešila in obogatila njihov učni proces. Akademске veščine so interdisciplinarni predmet, ki vključuje znanje in tehnične spretnosti z več ožjih in širših znanstvenih in strokovnih področij, ki vključujejo, vendar ne izčrpno, poglavja iz uporabne splošne psihologije učenja, pozornosti, poslušanja, motivacije, spomina, upravljanja, logistike organizacije učenja, spretnosti tehnike timskega dela, osnovne komunikacijske spretnosti, teoretična in praktična znanja, povezana z upravljanjem časa (upravljanje s časom) ter razvojem kritičnega mišljenja in kritične analize. Izjemno pomembne so za prihodnost poklica in zadovoljstvo z delovnim mestom, saj spodbujajo tudi razvoj delovnih vrednot med študenti.*

*Takšna sistematična uvedba e-učenja prispeva h kakovosti visokošolskega izobraževanja na podlagi učnih rezultatov s študenti v središču izobraževalnega procesa, pa tudi k razvoju ustreznih in inovativnih metod poučevanja in učenja, ki lahko dvignejo motivacijo študentov za študij, razvoj akademskih veščin, ustvarjalno in raziskovalno delo. Trg dela se nenehno spreminja, prav tako pa tudi potrebne spretnosti, sposobnosti in kvalifikacije. Študenti z razvojem veščin pridobivajo, razvijajo svoje življenjske in poklicne kompetence, zavzemajo svoje mesto v družbi in postanejo konkurenčni na trgu dela. Akademске spretnosti so potrebne, da lahko študentje uspešno zaključijo študij, ustvarijo kariero in so sposobni vseživljenjskega učenja, vključevanja na trg dela in so motivirani za razvoj podjetniškega učenja. Sistemi upravljanja učenja (LMS) so aplikacije, ki služijo kot posredniki v procesu e-učenja. Namen sistema LMS je uporabiti obstoječe vire za zagotavljanje čim boljšega in najboljšega učnega okolja, zlasti za spodbujanje akademskih veščin. Nekateri od trenutno najbolj uporabljenih sistemov LMS v izobraževanju so: Blackboard Learning System (prej WebCT), Edmodo, Schoology, D2L (prej Desire2Learn) in Moodle. Filozofska fakulteta v Osijeku že vrsto let uporablja sistem Moodle. Sodobni splet ponuja nešteto možnosti, toda ravno sistemi za upravljanje učenja so se izkazali kot ključni del te nove tehnologije, zasnovane tako, da olajša proces organiziranja poučevanja in učenja. Med njimi se je sistem Moodle uveljavil kot eden vodilnih sistemov za upravljanje učenja, katerega naloga je olajšati proces poučevanja in učenja, in to je bilo dokazano med epidemijo covida-19. Ena najpomembnejših prednosti sistema Moodle je, da spodbuja sodelovanje in interakcijo med študenti, pa tudi sodelovanje učiteljev in študentov. Poleg tega Moodle spodbuja neodvisnost študentov in študentom pomaga pri samoocenjevanju svojega znanja. Študentu omogoča samostojno delo in učenje s hitrostjo, ki mu ustreza, na koncu pa mu omogoča izvajanje raziskav in ustvarjanje neodvisnih projektov. Trenutno še ni raziskav o učinkovitosti sistema Moodle pri pridobivanju akademskih znanj študentov, zlasti na pedagoških šolah, kjer se izobražujejo študenti, ki bodo delali na pedagoškem področju. To je bil glavni namen te raziskave. Vse z razlogom, ker sodobno izobraževanje spodbuja razvoj veščin vseživljenjskega učenja, v katerem ima pomembno vlogo samoregulacija kot samousmerjen postopek, s katerim študentje duševne sposobnosti pretvorijo v akademske spretnosti.*

*Raziskava bo določila, katere kategorije akademskih veščin se pri študentih pedagoške najbolj razvijajo z uporabo sistema Moodle pri poučevanju. Glavni cilj te*

raziskave bo torej prikazal odnos študentov pedagogike na Filozofski fakulteti v Osijeku do uporabe sistema Moodle pri poučevanju, skušali pa bodo dobiti vpogled v to, kako pogosto učitelji uporabljajo sistem Moodle. Vse z razlogom, da bi študentom, bodočim strokovnjakom, zagotovili kakovostno delo na njihovem področju, da bodo lahko v prihodnosti preživeli na trgu dela in se naučili, katere vrste akademskih znanj lahko pridobijo med študijem po sistemu Moodle.

Hrvaška akademska in raziskovalna mreža (CARnet) je leta 2013 ustvarila programsko orodje Loomen, ki temelji na sistemu Moodle, s čimer je omogočila ustvarjanje digitalnih učnih gradiv in spletnih tečajev ter učenje na daljavo vsem učiteljem, profesorjem in drugim izobraževalnim delavcem v republiki. Hrvaška je zelo pomagala pri vzdrževanju e-učenja med epidemijo covid-19. Ker se Moodle uporablja v 232 državah po vsem svetu, je razumljivo, da obstaja veliko raziskav, ki obravnavajo uporabo sistema Moodle pri poučevanju in zadovoljstvo uporabnikov z njim. Raziskavo so na Filozofski fakulteti v Osijeku izvedli študenti pedagoške smeri na dodiplomski in podiplomski ravni, in sicer v obdobju od 20. novembra do 20. decembra v akademskem letu 2019/2020. V raziskavi je bila uporabljena metoda ankete prek aplikacije Google Docs in je bila zaključena prek spleta.

Izobraževalne ustanove morajo spremeniti in na novo določiti svojo vlogo. Informacijske in komunikacijske tehnologije spreminjajo način poslovanja, način učenja, mnenja in medosebne odnose. Nova vloga visokošolskih zavodov je ustvariti ekonomijo znanja, kajti osnovna gospodarska vira družbe nista več kapital in delo, temveč so znanje, akademske spretnosti in sposobnosti študentov, ki omogočajo družbi blaginjo. Znanstveniki se tudi strinjajo, da je ta generacija študentov v virtualnih okoljih socialno močno povezana, v skupinah se radi družijo, ustvarjajo in se učijo. To je namen te raziskave.

Rezultati kažejo, kakšna je vloga sistema Moodle za pridobivanje in spodbujanje akademskih veščin študentov pedagogike. Zato je v tem prispevku dan poudarek stopnji razvoja spretnosti pri učencih, pomembnosti nadaljnjega razvoja veščin z uporabo IKT in senzibiliziranju učiteljev za uporabo e-učenja pri poučevanju ter uvedbi strokovnih učnih sistemov in drugih sodobnih učnih metod, ki temeljijo na informacijski in komunikacijski tehnologiji.

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