

# EFFECTIVENESS OF DIGITAL RESOURCES IN THE LEARNING MANAGEMENT SYSTEM WITHIN ONLINE EDUCATION OF FUTURE ENTREPRENEURS

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## ABSTRACT

*The paper analyses the application of advanced digital resources when teaching English for future entrepreneurs. Relevance of the academic process digitalization under conditions of distance learning is proved. Modern digital resources have been identified and approaches to their classification have been determined. Opportunities of using Learning Management System within distance learning have been clarified. It has been established that digital resources can be effectively applied in the learning management system within online training at higher educational institutions. Our practical conclusions and results are based on purposeful survey and analyses of students' priorities in the researched field. It is concluded that proper use of digital resources results in the enhancement of foreign language proficiency of students, increases the involvement of students into interactive cooperation during online learning, and provides the students with the resources required for the formation of foreign language skills. It is found that active interaction during the classes let the students feel themselves a part of the community and motivates to perform the tasks.*

**Keywords:** Digital Resources, Distance Learning, E-Learning, Synchronous and Asynchronous Learning, Educational Process.

## INTRODUCTION

Ukraine's government is actively promoting the development of digital economy and society. According to the Concept of the Development of Digital Economy and Society 2018-2020 (2018), digitally modernized fields of human life like education are becoming much more effective and creating new value and quality meeting the needs of innovative creative entrepreneurship. Trends in the organization of the educational process at higher educational institutions prove a dominant role of digital resources in the academic process with e-learning as

an integral part of the educational process (Havryliuk et al., 2020). Currently, online teaching is a necessity because a deadly COVID-19 pandemic has shaken the entire world (Dhawan, 2020).

Education has been affected by Covid-19 pandemic. In 2020 most governments closed educational institutions to prevent a fast virus spread across the world. Continuous lockdown had a significant impact on the students' education and motivation. According to the data provided by the International Association of Universities (2020), over 1.5 billion students are affected by the closure of universities because of Covid-19. Ukraine's government closed all universities in the country on March 12, 2020 and suspended all academic activities. Thus, Ukrainian higher education sector faced lots of challenges affecting both teaching and learning activities.

The Internet has become one of the most important means of obtaining and distributing information for both teachers and learners. Implementation of up-to-date educational digital techniques and the use of electronic didactic tools make the teaching practice far more effective. Digital resources support learners in developing verbal interaction skills, increasing their vocabulary, and improving their reading comprehension.

## REVIEW OF PREVIOUS STUDIES

The concept of digital learning has no single definition. Yoon et al., (2012) argue that the term "*digital learning*" was first introduced by Jay Cross in 1999. Nowadays, digital education is basically defined as a combination of different components and advanced technologies through digital platforms. The first definitions of the term "*digital resource*" do not define it as a part of the educational process. One of the arguments is the fact that digital resources are designed for a general audience to serve a range of possible roles. Thus, digital resources were defined as any computer available information sources containing facts, perspectives or information on the topic of interest (Songer, 2007). On the one hand, lack of specificity as for audience, activities and performances makes no clear definition between intended goals, activities and products of "*learning success*" with the digital resources. Therefore, earlier studies intending to evaluate the "*learning process*" with digital resources were not successful. On the other hand, digital resources contained valuable information, such as science information presented in the form of a text, pictures, video or other interactive formats used in the learning process.

Rapid and constant innovations in information technologies changed the definitions of digital resources connecting it more and more with the learning process. Thus, this term was defined in a new way as "*digital learning resources*", which were referred to multimedia information resources that can be learned and arranged according to the characteristics of learners, can be operated on a multimedia computer or in a network environment, and can be learned independently or cooperatively by learners and can be widely shared (Jian-Guo, 2009).

In the later definitions digital learning resources were considered to be the sum of various learning resources that can be utilized by computer networks, specifically, it refers to all the learning resources that use electronic data to store text, image, sound, video, animation and other forms of information in optical, magnetic, flash memory and other non-paper media carriers, and transmit or reproduce them through the network and computer (Chen et al., 2012).

Using this informational potential in the learning process makes it innovative and more interesting. There were attempts to compare digital resources with cognitive tools. The last were defined as a computer-available information source or resource presenting focused information specifically tailored for particular learning goals on a particular topic of interest for learning by a particular target audience (Songer, 2007). Comparing cognitive tools with digital resources gave

way to new connections and tasks. One of the tasks of paramount importance became the task how to transform digital resources into cognitive tools. Nowadays, digital resources arise as a powerful and rich scientific platform necessary for further improvement of existing cognitive tools in educational process. For today, it's no wonder that existing digital resources have strong educational potential. Yet not long ago many existing digital resources were unusable in their current form because of being unfocused or narrowly focused.

The latest studies of digital learning resources consider their nature and functions. This study defines digital learning resources as using multimedia technology, Internet technology, software development technology, virtual reality technology and artificial intelligence technology to design and develop information technology, which can support students to learn independently, cooperative learning, inquiry learning, and hybrid learning (Wang et al., 2019).

The proportion of digitally recorded content is greatly increasing. In many contexts different modes have been replaced by word processing, databases, e-books, online newspapers and magazines, email, digital photography, digital audio, cell phones, digital radio and television. The other digital-only modes of communication, including Internet telephony, wikis, blogs, webcasting, and podcasting are added to this list today (Green & Huang, 2017). In its broad sense, digital resources comprise electronic tools, systems and devices that generate, store or process data. Well-known examples are the social media, online games, multimedia and mobile phones. At the same time, digital resources are often made up of separate digital media including video, text, images and sound. As for digital learning resources, we mean various kinds of software, e-books, e-tests, computer models, educational computer games, simulators as well as the above mentioned separate digital media ones. All of them are firstly oriented at asynchronous learning within the system of e-learning though they may be also used for synchronous teaching.

There are still terms closely connected with the term "*digital resources*". These are "*digital content*", "*digital media*", "*digital devices*". Thus, digital content is determined as a kind of content embodied in digital form. When we refer to digital resources that use the same means for recording and distribution, we speak of digital media. Interdependency exists between digital resources and digital devices: digital devices make digital resources accessible to our senses; in its turn, digital resources provide motivation for digital devices (Green & Huang, 2017).

Therefore, digital education is basically defined as a combination of different components and advanced technologies through digital platforms. The Concept of the Development of Digital Economy and Society 2018-2020 (2018) shares this definition and defines digital education as a combination of diverse components and up-to-date technologies due to the use of digital platforms, introduction of innovative information and educational technologies, implementation of progressive forms and methods of teaching and learning progressive. The term "*digital learning*" is closely connected with the term "*e-learning*" that is defined by the American Society of Training and Education (International Association of Universities, 2020) as the process of applying digital media including the Internet, computers, corporate network, audiotapes, satellite broadcasting, interactive TV, etc. during the learning process.

There have already been many attempts to classify digital resources and, in particular, digital learning resources into categories, types and classes. Thus, digital learning resources are divided into six categories: basic knowledge classes, auxiliary extension classes, tool software classes, network platform classes, virtual reality classes, and generative learning resources with digital learning in three dimensions: discipline, acquisition mode of digital learning resources and types of digital learning resources (Wang et al., 2019). Another classification divides digital learning resources into four classes: the first class includes digital learning resources based on

information (databases, search and inquiry systems, automatic library systems, e-files etc.), the second class involves automatic learning and scientific systems (digital systems for teaching and scientific activity management in different departments of an educational establishment), the third class includes automatic educational means (digital learning courses, teaching systems, lab-practice, computer simulators etc. ), and the fourth class includes special tools necessary for creating digital learning resources from the above mentioned classes.

Powerful changes in the opportunities of digital learning resources made it possible to treat e-learning as a process of teaching without the need for students' physical presence at lessons (Pustika, 2020). The biggest priorities of such e-learning are the flexibility in schedules and open access to higher education. We agree with Logosha et al., (2019) who argue that professional competence of future entrepreneurs can be developed due to application of effective forms and methods of organizing students' activities as well as the development of students' conscious attitude to the academic content and enhancement of their educational activity. In our opinion, properly planned e-learning can ensure high level of formation of professional skills of future entrepreneurs if specially adopted learning management system is applied.

The term "*Learning Management System (LMS)*" is defined as software used for delivering, tracking and managing training/education. LMSs range from systems for managing training/educational records to software for distributing courses over the Internet and offering features for online collaboration. In its narrow sense, LCMs is software for authoring, editing and indexing e-learning content. LCMS may be solely dedicated to producing and publishing content that is hosted on an LMS or it can host the content itself. LMS allows the teachers and administrators to track attendance, time on task, and student progress. LMS also allows parents and students to track these variables but as well. Students log on to the LMS to submit homework and to access the course syllabus and lessons (Mahnegar, 2012).

Today there are specially designed in digital format learning management systems that can be broadly used during the process of education. For example, 'Blackboard' as the application for interactive learning, creation of study groups and knowledge exchange; 'CenturyTech' as a platform with the tools for distant learning; 'Edmodo' as a system of resources for classroom management; 'Google Classroom' as a free of charge web-service created by Google for educational establishments with the aim to make easier work with tasks on computer; 'Moodle' as a learning platform aimed at communication between administrators, teachers and students into the whole integral system within personalized education and others.

There are digital online systems purposefully designed for mobile phones. Among them there are 'Cell-Ed', a special platform for students with autonomous functions; 'Eneza Education' with the sources produced for mobile phones; 'Funzi' as a mobile learning service with the option of teaching and learning large student groups; 'Ustad Mobile' as a platform for access and exchange of educational content. There are also offline functioning platforms, e.g. 'Can't wait to learn' in the form of game technologies; 'Kolibri' as a scientific application for offline learning; 'Rumie' in the form of learning tools for on-going self-education, etc.

Therefore, rapid development of knowledge and information era has caused a wide range of various explanations and terminology. Domestic and foreign researchers offer different definitions of digital learning. Such terms as Internet-based training, web-based training, on-line learning, network learning, distance learning, e-learning, digital education is being widely used.

## METHODOLOGY

This research focuses on the digital learning effect on the academic achievements and motivation through the application of an open education platform Moodle for higher education students of Vinnytsia Institute of Trade and Economics of Kyiv National University of Trade and Economics, one of the most powerful educational institutions of Ukraine, during Covid-19 pandemic. 98 second-year students of this Institute learning the course “*English for Specific Purposes*” were under the research. A questionnaire, informal discussions and formal interviews with students were conducted from September 1 to December 20, 2020. We used online tools and techniques to obtain data and analyzed it using computer-aided software. Academic results of the study were interpreted using numerical data. We used theoretical methods to analyze scientific literature on distance learning, teaching techniques, and students’ motivation. The scientific information was obtained from authentic websites, research articles and official reports.

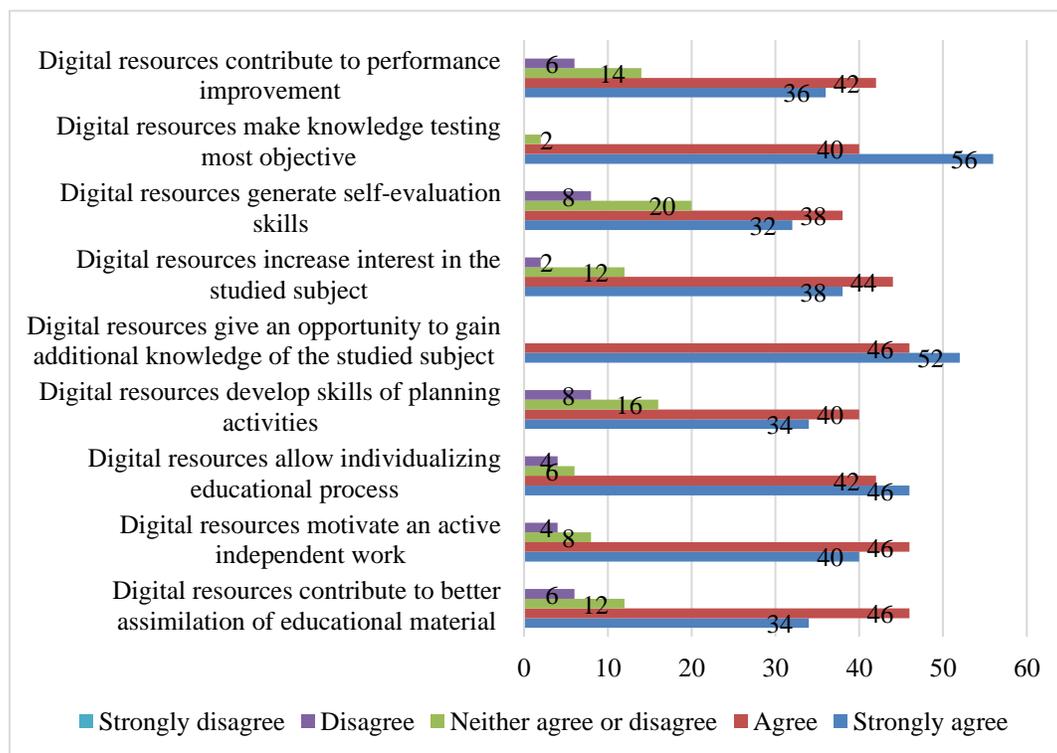
## RESULTS AND DISCUSSIONS

Vinnytsia Institute of Trade and Economics of KNUTE had used LMS Moodle, which stored all the learning materials uploaded by teaching staff by 2020. Since Ukrainian educational institutions had been closed by September 1, 2020, academicians were forced to teach online using various digital resources, i.e., online platforms like Microsoft Teams, Zoom, Google Meet etc. In autumn 2020, the epidemiological situation did not improve. Thus, we had blended learning, i.e., staff combined traditional full-time form of teaching with modern forms of e-learning, increasing their advantages and offsetting the disadvantages.

Before the outbreak of the Covid-19, most of Vinnytsia Institute of Trade and Economics of KNUTE students were not involved in online learning. In order to organize it properly a 5-question poll entitled Our Distance Learning was carried out. According to the online survey, 85% of respondents noted that learning instructions and recommendations are thoroughly clear to them. The second question was how much time it took one to do homework. Many students (75 %) pointed out that it took them 2-3 hours mentioning that the online education system saves time and money, it promoted self-control and pursue a balanced education in the virtual world. About 80% of the students said that online tests were the most effective Moodle tools enabling them both to improve and check their knowledge. Respondents also noted that this type of education system contributed to the increase in mutual communication between the students and teachers. The last question was about new forms and tools of teaching students recommended to implement on-line. Tests, video and audio materials were proposed by most students.

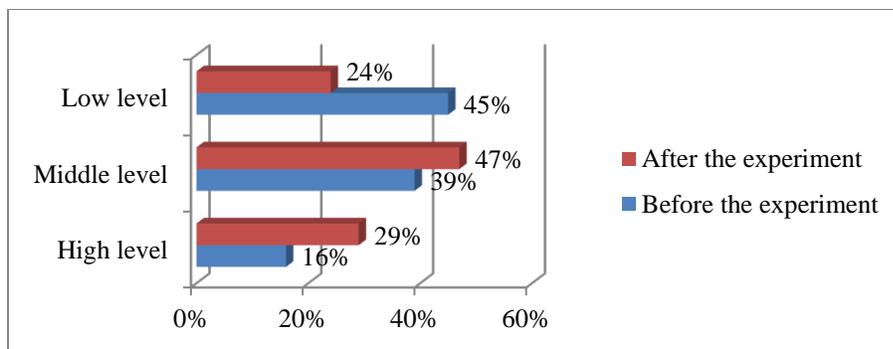
While designing the courses, the teaching staff considered students’ recommendations. The courses were designed on the basis of sound learning principles tailored to aid the development of practical skills such as listening comprehension skills; reading and writing skills; speaking and specific business terminology. Moodle is flexible enough for learning English and supporting innovative blended digital teaching methods. The given approach has become of great value for both students and teachers. Students are engaged into doing individual work at any convenient time, while teachers are able to control and check their works without auxiliary workload. The platform provides an opportunity to develop online interactive courses that boost students’ creativity, outlook and cognitive abilities, thus enhancing training outcomes.

We consider polls and questionnaires to be important for the research, analysis of results and effectiveness of e-learning. To get objective data, polls were conducted after the students had completed training and taken the exam in December, 2020. Students' opinion regarding digital resources in the system of online education is presented in Fig.1. Thus, 80 students (81.63 %) are sure that digital resources contribute to better assimilation of educational material. 86 students (87.76%) argue digital resources motivate individual work. 88 students (89.79 %) think digital resources ensure individualized educational process. 74 students (64.47 %) are sure digital resources develop planning skills. 82 students (83.67 %) think digital resources increase interest in the studied subject. 52 students (53.06 %) strongly agree digital resources let them gain additional knowledge. 60 students (61.22 %) believe digital resources generate self-evaluation skills. 96 students (97.69 %) say digital resources make testing most objective (Figure 1).



**FIGURE 1**  
**STUDENTS' OPINION REGARDING DIGITAL RESOURCES IN THE SYSTEM OF E-LEARNING**

To assess respondents' academic performance, we have evaluated their primary and final levels of foreign language proficiency.



**FIGURE 2**  
**COMPARATIVE ANALYSIS OF THE LEVEL OF FOREIGN LANGUAGE PROFICIENCY OF FUTURE ENTREPRENEURS**

Figure 2 reveals academic achievements of future entrepreneurs at the beginning of the academic year and at the end of semester, during which e-learning was applied, after the completion of the course “*English for Specific Purposes*”. The results of the exam grades, tests and individual assignments prove that foreign language competence of students has improved having promoted motivation of students due to on-going free access to tasks, video- and audio-materials as well as feedback provided by the lecturer.

## CONCLUSIONS

Therefore, traditional teaching is being replaced by the digital one and advanced computer technologies are becoming an essential part of both teaching and learning processes. Teachers are facing challenges in making classes much more productive, effective and interesting through the application of up-to-date digital technologies and platforms.

Analysis of the questionnaire results, as well as the comparison of academic performance of future entrepreneurs learning with and without the use of digital resources, strongly suggest that their implementation in on-line learning “*English for Specific Purposes*” improves the quality of the educational process. Their use allows the teacher to effectively organize the learning process and help the students to find their way among various sources of information, get feedback from the students on how well they master the content of the course, how much time it takes the students to get ready for the classes, etc.

The experience of on-line learning has proved that implementation of digital resources should begin with a deep analysis of learning objectives, didactic potential of new training information technology transfer, requirements for on-line education. Moreover, the planning and development of on-line learning must take into account the basic components of teacher’s activities, i.e., presentation of educational material, practical activities, and feedback.

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