



Digitalization in Teaching Economic Disciplines: Past, Current and Future Perspectives

Nikolina Dečman

The University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia

Ana Rep

The University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia

Abstract

This special issue of Business Systems Research (SI of the BSR) highlights the past, current and future perspectives of digitalization in teaching economic disciplines. The emphasis has been put on digital competencies, the quality of e-learning, e-exams, digital tools, gamification, and digital and mobile technologies used in the teaching process in the field of economics. The main focus groups of the research are teachers and students from the economic field of education at both university and secondary school levels. Seven papers selected for this SI of the BSR present the digitalization era's impact on teaching economic disciplines. The conducted research and publication of the papers are funded under the project "Challenges and practices of teaching economic disciplines in era of digitalization" (project no. 2020-1-HR01-KA202-077771), which is co-funded by the Erasmus+ Programme of the European Union.

Keywords: digitalization of teaching process; digital tools; gamification; e-learning; e-exams; digital competencies; teachers; students; higher education; secondary school education; economic disciplines.

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Introduction

When it comes to using digital technology in the teaching process, one may ask what the differences are between seemingly the same terms. By searching among scientific and professional studies, there are terms used such as online learning, e-learning, distance learning, virtual learning, web-based learning, blended learning, and digital tools-supported learning. To be able to discuss the advantages and disadvantages among them, they should be briefly defined. According to the findings delivered by Moore, Dickson-Deane and Galyen (2011), distance learning is a way of learning where an instructor is in a different place from the learner. So, there is a condition of geographic distance. On the other hand, e-learning is more challenging to describe, and various researchers give various definitions (Moore, Dickson-Deane and Galyen, 2011). Some define e-learning as a type of learning that is strictly accessible using technological tools that are either web-based, web-distributed or web-capable (Nichols, 2003), while others state that the technology being used is insufficient as a descriptor (in: Moore, Dickson-Deane and Galyen, 2011). When it comes to online learning, Carliner (2004) states that it refers to learning and other supportive resources that are available through a computer, which is quite similar to the definition of e-learning. However, more detailed descriptions and views are summarized in this SI of the BSR papers.

This editorial aims to present the results of the comprehensive research carried out as part of the strategic partnership project “Challenges and practices of teaching economic disciplines in the era of digitalization” – DIGI4Teach (2020-1-HR01-KA202-077771) co-funded by the European Union's Erasmus+ program.

Challenges and practices of teaching economic disciplines in the era of digitalization: DIGI4Teach Erasmus+ project

To improve some of the identified deficiencies, eminent teachers from the University of Zagreb, Osnabrück University of Applied Sciences, Cracow University of Economics, University of Belgrade, First, Second and Third School of Economics from Zagreb, and Economy, Trade and Catering School from Samobor have applied for the Erasmus+ Programme project in the field of *Cooperation for innovation and the exchange of good practices*, the area of *Strategic Partnerships for vocational education and training*. Evaluators have recognized the importance of the project entitled *Challenges and practices of teaching economic disciplines in era of digitalization* and approved its funding from EU sources.

The project aims to exchange challenges and practices in teaching economic disciplines (in particular accounting, finance, trade, international business and tourism) in the era of digitalization. Given the set goals, it is expected that the partnership between higher and secondary education institutions will contribute to developing teaching skills that will stimulate creative thinking and further support the entrepreneurial spirit of vocational education students. The international consortium from Croatia, Germany, Poland, and Serbia strive to contribute significantly to the activities of the education process and teaching and training of teaching staff through the exchange of good practices in the application of new innovative learning tools in different fields of economics.

The primary needs and objectives of the project include the following:
(1) to improve teaching skills and teaching practices in different economic disciplines with particular emphasis pointed out to the era of digitalization by sharing existing

good practices and analyzing the use of new digital teaching and learning technologies in vocational education of economists,

(2) to encourage digitalization in participating organizations,

(3) to increase students' satisfaction with acquired knowledge and skills in developing their entrepreneurial ideas and better inclusion in the labour market.

To achieve the desired flexibility in acquiring skills and competencies in the field of economics, the improvement of effective digital, open, and innovative education, as well as practical learning tools, seems necessary. The project will enable additional support for educators and learners to use digital technologies more creatively and efficiently. Adopting innovative practices in teaching economic disciplines will empower and connect educators in both higher and secondary school education. It will have a significant impact on the sector of Vocational Education and Training for future economists.

The most important result of the project will be the development and improvement of digital competencies and skills needed for teaching economic disciplines in the era of digital transformation of the teaching process. Online and face-to-face transnational meetings, round-tables, and especially short-term joint staff training events in all countries involved in the project will ensure that partners will achieve the planned project results.

In the project's final phase, a publication in the form of a handbook is expected to unite all findings related to the use of digital technology in teaching economic disciplines between partner countries. By the end of the project and afterwards, experiences and good practices exchanged between partners will be applied in vocational educational institutions of secondary and higher education involved in the project in all partner countries.

After the completion of the project, further progress in developing new technologies and teaching tools that can be used in teaching is expected. Therefore, there is space for continuing cooperation in the form of new projects where the emphasis will be on developing new innovative intellectual outputs.

Contributions

Following the goals and editorial policy of the BSR, the papers published in this SI of the BSR are intended to present original theoretical and empirical advances in teaching economic disciplines using a wide range of methodological approaches. The emphasis of all the papers has been put on the exchange of ideas, experiences and knowledge between regions with different technological traditions, primarily in the field of education and specifically economic disciplines. Most papers evaluate the results of conducted empirical studies applying the survey method. The seven papers accepted by BSR for this SI fulfil these objectives.

In the first paper, entitled "Landscape of e-Learning during Covid-19: Case Study of Economic Disciplines in Croatia", Sever Mališ, Mamić Sačer and Žager investigate the digitalization level of the higher education system in Croatia before and during the Covid-19 pandemic. The conclusions are based on the preparedness of the regulatory framework, the applied digitalization approach on a national level, the transition agility from face-to-face to online teaching, as well as the number of delivered e-courses, online study programs and the application of e-learning platforms. In addition to analyzing the situation in Croatia, the authors investigate experiences from other countries, especially the current state at the EU level. Research results show that Croatia is well prepared for the digitalization of higher education when it comes to the regulatory framework, but the necessary infrastructure seeks significant investments. Although complete online study programs were exceptions before the

pandemic, many e-courses were offered to students. The number of e-courses in the economic field was underrepresented compared to other disciplines, but most online study programs were related to business and the economy. Experiences from e-courses combined with the support from national institutions such as CARNET and SRCE have certainly contributed to the high agility demonstrated by Croatian higher education institutions when suddenly shifting to an online environment at the beginning of the pandemic. The authors also concluded that the digitalization process in Croatia could be even more successful if the top-down approach was applied, judging from the experiences of other countries, which would imply national and university strategies and enough government funding.

In the second paper, entitled "Pros and Cons of e-Learning in Economics and Business in Central and Eastern Europe: Cross-country Empirical Investigation", Głodowska, Wach, and Knežević focus on the advantages and disadvantages of e-learning from students' perspective. Using the survey method, they researched a sample of university students from Poland, Croatia, and Serbia. Regarding the impact of e-learning on improving teaching outcomes, the results show that students rate it very highly by giving each e-learning fragment a major impact (on average almost 4 out of 5). The next part of the research refers to the statements regarding e-learning, which were grouped into four categories: communication, interaction, and motivation; learning efficiency and costs; contents and teaching materials; sustainability, ethics and social responsibility. The average answers of the students indicate that they agree with the statements at least to a moderate extent. Employing a multivariate analysis (factor analysis and principal component analysis) resulted in four factors that unite similar statements and a more transparent review of the advantages and disadvantages of e-learning perceived by students. Finally, they concluded that students see numerous benefits of e-learning and that the advantages in many areas exceed the disadvantages.

In the third paper, entitled "e-Learning in Higher Institutions and Secondary Schools during Covid-19: Crisis Solving and Future Perspectives", Brozović, Ercegović and Meeh-Bunse explore the challenges and benefits that students and educators faced with e-learning during the pandemic. In addition to the literature review, they presented the results of primary research that was conducted through a questionnaire distributed to university and high school educators and students in Croatia, Poland, Serbia and Germany. Undeniably, the pandemic forced educators and students to introduce more digital tools in the education process, as the research shows, leading to improved individual digital competencies. However, the authors concluded, using descriptive statistics and non-parametric tests, that there are certain differences in opinion between students and educators and between university and high school respondents. Namely: 1) high school students were less optimistic about the positive impact of the pandemic on applying digital tools in teaching than university students, 2) educators generally prefer traditional exams, while students generally prefer e-exams, 3) a higher proportion of university respondents believe that e-learning should be used as an important addition to traditional teaching when compared to high school respondents. In the end, they concluded that e-learning definitely would and should be used in the future, but in a form that suits educational level and ensures the adoption of learning outcomes and reliable examination of acquired knowledge, which are some of the issues that arose during the pandemic and sudden transition to e-learning.

In the fourth paper, entitled "Digital Competencies among Higher Education Professors and High-School Teachers: Does Teaching Experience matter?", Pera, Hajdukiewicz, and Ferjanić Hodak consider the potential of ICT in the teaching process

related to economic disciplines. They surveyed on self-assessment of university professors and secondary school teachers' digital competencies, particularly their proficiency and skills. The overall results show that the self-assessed level of respondents' competencies is at the intermediate level. The most emphasized differences occur from the perspective of the teaching experience approximated by the years of teaching (up to 5, 6-15, 16-25, and over 25). The competencies decrease with an increase in experience. However, those with 6-15 years of experience self-assessed their digital competencies at a higher level than those with up to 5 years of experience. Interestingly, respondents rated their knowledge more elevated than their skills, which indicates a lack of practical work. In addition, university professors have more self-confidence in their digital competencies compared to secondary school teachers.

The fifth paper is entitled "Who is more eager to use Gamification in Economic Disciplines? Comparison of Students and Educators". Authors Dečman, Rep and Titgemeyer explore if educators and students are motivated and willing to apply additional technologies as main gamification components in their work and education. Using a survey questionnaire, they collected 424 responses from educators and 2,474 from students from Croatia, Poland, Serbia, and Germany. The results reveal that educators and students, on average, agree that more digital tools should be introduced into the teaching process, and there is no significant difference between their attitudes. In addition, a statistically significant difference with a confidence level of 95% was found in the second research question that examined educators' and students' perceptions of the impact of simulation games on improving the outcome of the teaching process, where educators showed significantly higher expectations of such impact. Furthermore, research results showed that the attitude of educators and students regarding making the learning process more fun by using multimedia materials (audio and video materials, games, etc.) statistically significantly differs where, again, educators perceive a more significant impact. Finally, as expected, educators showed they need a higher level of administrative support when they use e-learning tools in the teaching process compared to students' needs for such support.

In the sixth paper, entitled "Which Digital Tools dominate Secondary and Higher Education in Economics: Google, Microsoft or Zoom?", Pavić, Mijušković, and Žager aimed to identify the most important digital tools applied by educators and students both from secondary and higher education during the pandemic and evaluate their satisfaction with applying these tools in four countries; Croatia, Germany, Poland and Serbia. Authors summarized the advantages and disadvantages of digital tools usage in education-practice. Research showed that Google tools most commonly used by students and educators are; YouTube, Gmail, Google Translate, Google Maps and Google Drive. Microsoft digital tools most commonly used by educators and students in observed countries are; Word, PowerPoint and Excel. Other digital tools most commonly used by educators are Zoom and Moodle, while students mostly use Zoom and Kahoot. Authors also identified the main reasons for the insufficient use of digital tools by educators, and they are: overload of existing teaching materials (lack of time for additional application of digital tools) and lack of time for preparing new materials. Final conclusion is that Google, Microsoft and Zoom dominate their specific domains: Google for networks, Microsoft for documents, and Zoom for online meetings.

Seventh paper is entitled "Digital Competencies in Selected European Countries among University and High-School Students: Programming is lagging behind". Authors Draganec, Jović and Novak investigated how university and high-school students in economics self-assess their digital competencies and then analyzed the identified differences. The paper's main goal was to identify university and high-school students'

current levels of digital knowledge and skills and to propose ways to improve their digital competencies with the ultimate goal of facilitating the learning process and providing a smooth transition and inclusion of university and high-school students in the labour market. A survey using questionnaire was conducted to collect data that were analyzed using non-parametric statistic tests (Mann-Whitney U test and Kruskal-Wallis H test) and Spearman Rank-Order Correlation coefficient. According to the research results, university and high-school students consider to have below intermediate level of digital competencies. High-school students self-assessed digital competencies at a higher level than university students. University students of higher years of study self-assessed digital competencies at a higher level. There is no universal pattern among high-school students of different years of study. Programming is the most lagging behind in all the observed groups. In the end, the authors concluded that consistency exists in the self-assessment of digital knowledge and digital skills. The identified below intermediate level of digital competencies and discovered discrepancies, according to authors, indicate the need for educational process improvements to provide university and high-school students with a higher degree of digital competencies.

Conclusion

Digital technologies are an indispensable part of the learning process nowadays. Current research and practice show that the education system of future economists is insufficiently attentive to the development of teachers' digital competence and, consequently, students' digital competence, especially in the secondary education system. To modernize the education and training of future economists, it is essential to promote the use of digital technology for learning in the field of vocational education. In that manner, strengthening teachers' competencies for different forms of training would promote the comprehensiveness of teaching future economists.

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Guest Editors of SI BSR

Nikolina Dečman, PhD

Ana Rep, PhD

The University of Zagreb, Faculty of Economics and Business, Zagreb, Croatia

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About the editors

Nikolina Dečman, PhD is an Associate Professor at the Faculty of Economics and Business, University of Zagreb, Department of Accounting. She received recognition from the Croatian Association of Accountants and Financial Experts for her postgraduate thesis and doctoral dissertation. She teaches various accounting courses, and her main research interests are accounting for SMEs, financial and non-financial reporting, and financial statement analysis. Currently, she is a Project Manager of the DIGI4Teach project co-funded by the Erasmus+ program of the EU, a member of the Judging Committee of the National Competition of Vocational School Students - WorldSkills Croatia 2022 for the discipline of Accounting, a lecturer in professional training for Certified Internal Auditors and an Editorial Board Member of the Proceedings of the Conference "Internal Audit and Control". She has been actively engaged in several scientific and professional projects (Ministry of Science, Education and Sports, Croatian Science Foundation, UNIZG, Polish National Agency for Academic Exchange). The author can be contacted at ndecman@efzg.hr.

Ana Rep, PhD is a Post-Doctoral Researcher and Teacher at the Department of Accounting, Faculty of Economics and Business, the University of Zagreb, where she teaches four accounting courses. She received a PhD in Accounting at the FEB UNIZG with the dissertation thesis "Impact of Disclosure Requirements Changes on the Improvement of Financial Reporting Model," awarded by the Croatian Association of Accountants and Financial Experts. She was also educated in Strengthening the Fundamental Teaching Competencies of Higher Education Teachers, Preparation and Implementation of the EU Co-Funding Projects, and Internal Audit in the Field of the Real Sector. Her main research interests include accounting for SMEs, accounting information systems, and financial and non-financial reporting. She has been actively engaged in several scientific and professional projects co-funded by the Erasmus+ programme, Croatian Science Foundation, Polish National Agency for Academic Exchange, and UNIZG. The author can be contacted at arep@efzg.hr.