Paper prepared for the
11th Budapest Visual Learning Conference
– ENVISIONING AN ELECTRIFYING FUTURE
to be held simultaneously online and physically on Nov. 13, 2024, 13:00–19:20 CET,
organized by the University of Pécs
and the Hungarian Academy of Sciences.

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Is Digital Literacy the Key Competence of the Future?

1. Higher education institutions are under constant pressure to change and evolve.[1] Perhaps one of the greatest challenges for institutions is the information technology revolution, which had/has an impact on the teaching–learning processes in higher education, and has changed the learning characteristics of students and their expectations of their courses. This change was most evident during the period of the COVID-19 epidemic, when educational institutions had to switch to digital and online education overnight.[2] The challenges generating these changes have been felt in many areas over the past period. The economic environment, digitisation, funding, student and labour market

[1] Liliana Budevici Puiu, "The Necessity of Change and Development of the Higher Education Institution in the Age of Globalisation", *Revista Romaneasca pentru Educatie Multidimensionala,* vol. 12, no. 1 (2020), pp. 350–356; Olga Burukina, "University Internal Communication in the Digital Era: Finding a Systemic Approach", *Journal of Emerging Trends in Marketing and Management*, vol. I, no. 1 (2021).

[2] Fernando Ferri – Patrizia Grifoni – Tiziana Guzzo, "Online Learning and Emergency Remote Teaching: Opportunities and Challenges in Emergency Situations", *Societies*, vol. 10, issue 4 (2020); Janice Hawes, "The Challenges of Emergency Online Instruction at a Small HBCU", *Journal of Higher Education Theory and Practice*, vol. 22, no. 18 (2022); J. M. Ramírez-Hurtado *et al*., "Measuring Online Teaching Service Quality in Higher Education in the COVID-19 Environment", *International Journal of Environmental Research and Public Health*, vol. 18, issue 5 (2021).

expectations and societal changes are increasingly challenging higher education.[3] A higher education institution can be considered successful if it prepares its students for the labour market. Students' success requires the competences that 21st century jobs demand: global awareness, innovation, creativity, media literacy, leadership and responsibility.[4] The competences list is constantly expanding as new needs and expectations emerge, including, for example, digital competences. The development of digital competences requires infrastructural, methodological and pedagogical changes by higher education institutions.[5] At the same time, the results of this development need to be continuously measured to see whether a course is achieving the right results to meet the required competences.

2. To develop digital literacy, a number of relevant questions need to be answered. What is digital literacy? Is there a match between the use of tools and home education? How can digital literacy be meas-

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[3] Christi Edge et al., "Leading University Change: A Case Study of Meaning-Making and Implementing Online Learning Quality Standards", *American Journal of Distance Education*, vol. 36, issue 1, (2022), pp. 53–69; Elisa Sarda – Olga Kasatkina – Erica de Vries, "How Do Lecturers Conceptualise Pedagogical Innovations in Higher Education?", *Innovations in Education and Teaching International*, vol. 61, issue 4 (2024), pp. 611–621.

[4] T. G. Cummings – C. G. Worley, *Organization Development and Change* (10th ed.), Stamford, CT: Cengage Learning, 2015; J. R. Thelin, *A History of American Higher Education*, Baltimore: Johns Hopkins University Press, 2011.

[5] Shahid Farid – Rodina Ahmad – Mujahid Alam, "A Hierarchical Model for E-learning Implementation Challenges Using AHP", *Malaysian Journal of Computer Science*, vol. 28, no. 3 (2015), pp. 166–188; Benedetto Lepori – Cantoni Lorenzo – Chiara Succi, "The Introduction of E-Learning in European Universities: Models and Strategies", in Michael Kerres – Britta Voß (eds.), *Digitaler Campus: Vom Medienprojekt zur nachhaltigen Mediennutzung auf dem Digitalen Campus*, Münster: Waxmann, 2003, pp. 74–83; Donna L. Rogers, "A Paradigm Shift: Technology Integration for Higher Education in the New Millennium", *AACE Review* (formerly *AACE Journal*), vol. 1, no. 13 (2000); Helena Santos – João Batista – Rui Pedro Marques, "Digital Transformation in Higher Education: The Use of Communication Technologies by Students", *Procedia Computer Science*, vol. 164 (2019), pp. 123–130.

ured?[6] The situation is more complex than public discourse and literature suggest.[7] The younger generation is indeed born into the digital society, they may have relatively higher levels of digital competences, but they do not necessarily have the ICT competences that the labour market requires. [8]

3. A number of studies have been carried out to map the area, but we will refer to a few of them without wishing to be exhaustive. In 2017, the European Commission carried out a questionnaire survey[9] in EU countries to assess the impact of digitalisation on everyday life in European countries. Only 12 percent of Hungarian respondents were confident that they were skilled enough for digital and online learning. The average for EU28 Member States was 29%. In 2019, the European Commission conducted a self-assessment of digital competences of learners and teachers[10] based on the DigComp framework. Students self-report that they perform well in all dimensions. Self-assessment is higher than the EU average in almost all competences. But this is no longer true for teachers. Compared to the EU average, teachers rate their own competences much lower than the EU average in all competences. Students' self-assessments do not necessarily reflect reality, with research by the Foundation for 21st Century Education pointing to a lack of digital skills. The research looked at 15 innovative schools and measured the digital competences of more than 2,700 pupils aged 13–18. The survey measured students' digital skills

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[6] Tibor M. Pintér, "Digitális kompetenciák a felsőoktatásban", *Modern Nyelvoktatás*, vol. XXV, no. 1. (2019), pp. 47–58.
[7] Henry Jenkins *et al*., *Spreadable Media: Creating Value and Meaning in a Networked Culture*, New York: NYU Press, 2013; Marc Prensky, "Digital Natives, Digital Immigrants", *On the Horizon*, vol. 9, no. 5 (2001), pp. 1–6; Annamária Tari, *Z generáció*, Budapest: Tericum Könyvkiadó, 2011.
[8] B. B. Budai – S. Csuhai – I. Tózsa, "Digital Competence Development in Public Administration Higher Education", *Sustainability*, vol. 15, issue 16 (2023); Pintér, *op. cit.*
[9] *European Commission Special Eurobarometer 460: Attitudes Towards the Impact of Digitisation and Automation on Daily Life*, 2017.
[10] European Commission, 2nd Survey of Schools: ICT in Education, 2017/2021.

in fictional but everyday situations. The research was based on the DigComp 2.0 framework and measured the five competences of the DIGCOMP-European Digital Competence Framework. The first domain is information gathering and processing, the second is communication, the third is content creation, the fourth is security and the fifth is problem solving. In total, the five competence areas comprise 21 sub-competences and can be developed at 8 proficiency levels.[11] The results of the research show that students have most problems with searching and evaluating information on the internet. Problem solving, security, content production and communication scored better on average (above 50%). Students are generally good in the online space, but when it comes to solving a new problem, they are not successful when it comes to using their creativity. The research also highlights the shortcomings of education, which should be much more responsive to change.[12] 49% of the population have basic digital skills, well below the EU average of 56%. Eurostat 2020 data show a drop in this figure compared to 2015 and 2019. Rates are better for 16–19 year olds, but still lag behind the countries in the region.[13] Recognising the importance of this area, the development of digital competences is supported and promoted by a number of EU and Hungarian projects.[14]

4. The fact that the problem is present in higher education and that universities also have a role to play in this area is also demonstrated by the establishment of the Hungarian Rectors' Conference's Digital Transformation Working Group in 2023. There are also many good

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[11] Budai – Csuhai – Tózsa, *op. cit.*; S. Carretero-Gomez – R. Vuorikari – Y. Punie, DigComp 2.1: *The Digital Competence Framework for Citizens with Eight Proficiency Levels and Examples of Use*, 2017; Riina Vuorikari – Wayne Holmes, "DigComp 2.2. Annex 2. Citizens Interacting with AI Systems", Publication Office of the European Union, 2022, pp. 77–82.

[12] See https://news.microsoft.com/hu-hu/2018/07/02/van-mit-fejleszteni-a-z-generacio-digitalis-kompetenciain.

[13] B. B. Budai, "A digitális kompetencia növekvő szerepe", *Pro Publico Bono*, 2022, no. 2, pp. 30–59.

[14] See https://digitalisjolétprogram.hu/kiadvanyaik.

practices in the field.[15] The NKE's[16] digital competence development course can also be included in this list of good practices, mainly because it tries to support students' development with new tasks and methods from semester to semester. One of the new areas of development was the use of built-in homework tasks aimed at developing different areas of competence. The digital CV writing exercise developed students' competences in the area of digital content development, the two-page text submission in the area of internet use, searching, downloading and evaluating content, the pair/triad newsletter editing in the area of online communication and collaboration, the website analysis in the area of problem solving and security. The fifth task focused on checking knowledge items and monitoring continuous progress, again with an emphasis on student activity. Students had to take a test on the Kahoot interface, which allowed them to develop their digital competences and to check the knowledge of others. The students' competence development was measured by a self-assessment based questionnaire. The student responses showed that a high percentage of students (81%) had developed in the area of digital content editing, while slightly fewer (79%) had developed in the area of copyright and licensing. Almost 80% (77%) have also improved in filtering and evaluating information, browsing and searching, and creating digital content. They also scored high in creative use of digital technologies (73%) and content management (71%). Competency area 2 (communication and collaboration) also scored relatively high, but they also reported improvements in managing digital identity. The results of the questionnaire survey also show that a high percentage of students reported improvements in the areas of competence where we put emphasis.

5. The integration of the subject into the curriculum was justified by the digital competence deficit of students entering higher education. In 2022, the European Commission published the DigComp 2.2 ref-

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[15] Budai, *op. cit.*, cf. note 13 above.
[16] NKE: Ludovika University of Public Service, Hungary.

erence framework, which included the digital requirements of the period since 2017. It shows that digital competence and readiness is now a competitive factor for the 21st century workforce. Higher education needs to place a strong emphasis on developing digital competence areas and acquiring proficiency in specific areas, alongside other key competences for the labour market. Based on the results of the research, it can be said that the course reflects the frame of reference well and the development in the course was basically adequate in each area.[17]

[17] The present study was translated using DeepL.