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DIGITAL TRANSFORMATION OF LANGUAGE EDUCATION: INSIGHTS FROM THE EUROPEAN DIGIFLED PROJECT

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The full-scale war in Ukraine has intensified the need for resilient and flexible models of language education, accelerating the transition toward digital formats across higher education institutions. At the same time, the digital transformation of language instruction remains uneven, limited by disparities in infrastructure, instructors' digital competence, and the integration of innovative pedagogical technologies. The study examines key features and trends of digital transformation in Ukrainian university language education using the benchmarking report of the Erasmus+ CBHE project "Modernisation of university education programmes in foreign languages by integrating information technologies (DigiFLED)" as the primary analytical source. The report's comparative insights into European partner universities serve as reference models for assessing digital transformation potential in Ukraine.

The methodology combines comparative analysis of major European frameworks (DigCompEdu 2.0, Digital Education Action Plan, CEFR Companion Volume) with content analysis of DigiFLED benchmarking materials. Structural analysis of practices in three European partner universities - Maynooth University, University of Western Macedonia, and Tampere University - was used to identify strategies related to digital governance, pedagogical models, AI integration, and



instructor support.

The findings reveal universal components of effective digital transformation: strategic institutional alignment, strong teaching-support centres, coherent LMS-based ecosystems, extensive use of multimodal and autonomous learning formats, and responsible implementation of artificial intelligence. Compared with these models, Ukrainian universities show both substantial potential and persistent constraints, particularly regarding infrastructure, digital competence development, and pedagogical integration of digital tools.

The study concludes that insights from the DigiFLED benchmarking process provide a strong basis for developing sustainable digitalisation strategies in Ukrainian language education.

Keywords: digital transformation, language education, benchmarking, DigiFLED, higher education

Повномасштабна війна в Україні посилила потребу в стійких і гнучких моделях мовної освіти, прискоривши перехід закладів вищої освіти до цифрових форматів. Водночас цифрова трансформація мовної підготовки залишається нерівномірною, що зумовлено відмінностями в інфраструктурному забезпеченні, рівні цифрової компетентності викладачів та інтеграції інноваційних педагогічних технологій. Дослідження спрямоване на вивчення ключових особливостей і тенденцій цифрової трансформації мовної освіти українських університетів на основі бенчмаркінгового звіту проєкту Erasmus+ СВНЕ «Модернізація університетських освітніх програм з іноземних мов на основі інтеграції з інформаційними технологіями» (DigiFLED)» (2023–2026), який використано як основне аналітичне джерело.

Порівняльні висновки звіту щодо європейських університетів-партнерів слугують референтними моделями для оцінювання потенціалу цифрової трансформації в Україні. Методологія ґрунтується на поєднанні порівняльного аналізу ключових європейських рамок цифровізації (DigCompEdu 2.0, Digital Education Action Plan, CEFR Companion Volume) та контент-аналізу бенчмаркінгових матеріалів DigiFLED. Додатково застосовано структурний аналіз практик трьох європейських університетів-партнерів – Мейнський університет (Ірландія), Університет Західної Македонії (Греція) та Університет Тампере (Фінляндія) – з метою ідентифікації стратегій цифрового управління, педагогічних моделей, інтеграції штучного інтелекту та механізмів підтримки викладачів.

Результати дослідження засвідчують наявність універсальних компонентів ефективної цифрової трансформації: стратегічної інституційної узгодженості, розвинених центрів підтримки викладачів, цілісних LMS-екосистем, широкого використання мультимодальних і автономних форматів навчання та відповідального впровадження технологій штучного інтелекту. У порівнянні з цими моделями українські університети демонструють як значний потенціал, так і стійкі обмеження, зокрема у сфері інфраструктури, розвитку цифрових компетентностей і педагогічної інтеграції цифрових інструментів. Аналітичні висновки бенчмарку



DigiFLED створюють підґрунтя для розроблення стійких стратегій цифровізації мовної освіти в Україні.

Ключові слова: цифрова трансформація, мовна освіта, бенчмаркінг, DigiFLED, вища освіта

Introduction. The full-scale war in Ukraine has intensified the need for resilient and flexible models of higher education, particularly in the field of foreign language instruction. Instability of the learning environment, the displacement of students and instructors, partial destruction of infrastructure, and the necessity to combine online, offline, and blended formats have heightened the importance of effective digital solutions. Under these conditions, ensuring continuity of instruction and guaranteeing access to digital learning resources for diverse student groups have become central challenges for universities.

The war has also exposed a widening gap between traditional models of language teaching and the expectations of a modern digital learning ecosystem. Disruptions to academic schedules, limited access to physical classrooms, and a growing demand for individualised learning have strengthened the role of information and communication technologies as a key mechanism of educational resilience. As a result, the digital transformation of language education requires systematic analysis and an assessment of universities' institutional capacity to support high-quality digital teaching and learning.

One of the most significant challenges concerns disparities in instructors' digital competence, which directly affects the quality of blended and online instruction. This issue is characteristic not only of higher but also of general secondary education. In response, the Ministry of Education and Science of Ukraine, in cooperation with the European Training Foundation, the European Commission's Directorate-General for Education, Youth, Sport and Culture, and the Ministry of Digital Transformation, launched a nationwide assessment of teachers' digital competence using the SELFIE for Teachers instrument in 2025 (Ministerstvo osvity i nauky Ukrayiny, 2025). Although designed primarily for school-level educators, this initiative highlights challenges also evident in higher education, where instructors' digital readiness significantly influences the quality of language instruction and students' access to digital resources.

Despite ongoing efforts toward digitalisation, universities continue to face uneven levels of technical infrastructure, insufficient support for the development of digital content, and fragmented integration of digital tools into language education programmes. These systemic limitations demonstrate the need for a comparative analysis of European approaches to digitalisation, which could help identify structural gaps and guide further modernisation.

Digital transformation in language education is widely recognised as a central topic in contemporary educational research. International studies emphasise that digitalisation extends far beyond technological provision and entails deep changes in interaction patterns, instructor roles, and course design. Within the updated *the European Framework for the Digital Competence of Educators*, DigCompEdu 2.0 (Redecker & Punie, 2022), digital competence is conceptualised as a multidimensional construct



that includes digital lesson planning, resource management, online communication, digital assessment, and the support of learner autonomy. A systematic review by Hilliger, Salinas, and de Benito (2022) further highlights that effective digitalisation depends less on access to technology and more on instructors' ability to integrate digital tools into pedagogically meaningful learning scenarios.

Recent research in digital language learning also underscores the growing importance of multimodality, AI-supported tools, and digital communication genres, all of which shape new forms of learner engagement (Hockly, 2024). These trends reinforce the need for instructors to work confidently in digital environments and to design high-quality multimodal materials that support communicative development.

At the national level, the *Concept for the Digital Transformation of Education and Science in Ukraine* outlines priorities such as modernising infrastructure, developing educators' digital competence, and expanding digital resources that support learning in unstable conditions (Ministerstvo osvity i nauky Ukrayny, 2023). Complementing this, contemporary Ukrainian research stresses persistent disparities in digital readiness across higher education institutions and the need for coherent institutional strategies to address them.

Against this background, the benchmarking report developed within the Erasmus+ CBHE project *Modernisation of University Education Programmes in Foreign Languages by Integrating Information Technologies (DigiFLEd)* (2023–2026) offers a valuable empirical foundation for the current study. The report analyses digital practices in three European partner universities – Maynooth University (Ireland), University of Western Macedonia (Greece), and Tampere University (Finland) (DigiFLEd Benchmarking Report, 2024). Its findings provide insights into institutional strategies, digital infrastructure, pedagogical models, and support mechanisms that can serve as reference points for Ukrainian universities.

The **purpose** of this article is to examine the key features and emerging trends of digital transformation in Ukrainian university language education by analysing the DigiFLEd benchmarking report and evaluating the relevance and adaptability of European digitalisation models for Ukrainian higher education institutions.

Methodology. The study adopts a qualitative research design that integrates comparative and content-analytical approaches. The DigiFLEd benchmarking report serves as the primary empirical source, offering structured data on institutional digitalisation practices in three European partner universities. To contextualise these findings, major European digitalisation frameworks including DigCompEdu 2.0 (Redecker & Punie, 2022), the Digital Education Action Plan 2021–2027 (European Commission, 2020), and the CEFR Companion Volume (Council of Europe, 2020) were analysed to identify shared principles, competency models, and pedagogical orientations shaping contemporary approaches to digital language education.

Content analysis of the DigiFLEd materials focused on institutional strategies, digital infrastructures, teaching-support mechanisms, pedagogical models, and the use of AI-driven tools. These data were coded thematically and complemented by elements of structural analysis to identify recurrent patterns in digital governance, instructor support, and blended-learning practices across the partner universities. This methodological combination allows for a comprehensive evaluation of European



models and supports the identification of trends, gaps, and potential pathways for adapting these approaches within Ukrainian higher education.

Consolidated Benchmarking Findings. A comparative analysis of the DigiFLEd Benchmarking Report (2024), combined with key European Union documents in the field of digital education, shows that the digital transformation of language education across the partner universities is grounded in several shared structural foundations. These align with the Digital Education Action Plan 2021–2027 (European Commission, 2020), the updated DigCompEdu 2.0 Framework for the Digital Competence of Educators (Redecker & Punie, 2022), and the Council of the EU Recommendations on Digital Education (Council of the European Union, 2020). Additional alignment is observed with sectoral white papers on the digitalisation of higher education, including analytical reports by EUA (2020) and EADTU (2021).

Taken together, these models reflect the contemporary European paradigm for foreign-language teaching and offer a valuable reference point for the modernisation of Ukraine's system of language education.

First, the institutions demonstrate strong strategic alignment in the area of digital governance and policy. Digitalisation is embedded in their long-term development strategies and is treated as a core institutional priority rather than a temporary response to emergency teaching. Centralised digital support units – such as Teaching and Learning Centres, Digital Learning Units, and IT Services – play a crucial role in operationalising this strategy. These units provide methodological support for blended learning, deliver CPD programmes, and advise teaching staff on digital ethics and academic integrity.

Analytical reports by EADTU (2021) and EUA (2020), along with EU-level guidance on digital transformation in higher education (European Commission, 2022), emphasise that such support structures form the institutional backbone for sustainable digital innovation.

Second, all analysed universities operate comprehensive, integrated digital ecosystems built around LMS platforms. Moodle most commonly serves as the “digital backbone” – the core of the learning environment connected with institutional portals, multimedia services, and learning analytics tools (DigiFLEd Benchmarking Report, 2024). Shared features include unified course templates, standardised navigation logic, integration of external tools (H5P, interactive video, automated assessment systems), and the use of analytics to support evidence-based improvements in teaching. Consistent with DigCompEdu recommendations, these ecosystems enable personalised learning, Universal Design for Learning (UDL), and improved accessibility for diverse student populations (Redecker & Punie, 2022).

A further shared pattern concerns the role of multimodality as a driver of learner autonomy. Across the partner universities, multimodal formats – including podcasts, multimedia simulations, interactive trainers, micro-courses, and digital self-study scenarios – are used extensively to enhance learning flexibility and enable students to progress at their own pace. These practices are fully aligned with the Council Recommendation on Key Competences for Lifelong Learning (Council of the European Union, 2018), which identifies multimodal and digital literacy as essential 21st-century competences, as well as with the CEFR Companion Volume (Council of



Europe, 2020), which stresses the importance of digital communication genres and online interaction. Multimodal resources are thus not merely supplementary materials but constitute a key mechanism for strengthening learner autonomy – a central element of contemporary European digital pedagogy as reflected in DigCompEdu and the Digital Education Action Plan.

Another significant shared trend concerns the integration of artificial intelligence technologies into language education. Across the partner universities, AI-driven tools are increasingly used to support the development of language skills. These include language chatbots and personal digital tutors, automated feedback systems, voice assistants and speech-synthesis tools, technologies for automated assessment of writing and pronunciation, as well as multimodal simulations that model authentic communicative situations. The deployment of such tools corresponds directly with the approaches outlined in the *Ethical Guidelines on the Use of Artificial Intelligence (AI) and Data in Teaching and Learning for Educators* (European Commission, 2022) and the *Digital Education Action Plan 2021–2027* (European Commission, 2020), particularly in relation to enhancing teaching practices and improving the digital support available to students in language education. AI is expected to strengthen learner autonomy, offer access to individualised feedback, and create additional opportunities for practising oral communication in online settings.

At the same time, partner universities underline that innovative solutions must be balanced with principles of digital ethics and academic integrity. EU institutions generally advocate for the responsible use of AI – one that enhances learning processes without replacing pedagogical interaction or diminishing the instructor's role. A practical example is provided by Tampere University, which has introduced internal guidelines regulating the use of AI: mandatory disclosure of tools used, clear definitions of permitted and prohibited use cases, and a requirement that assessment must remain the responsibility of the instructor.

Another shared direction concerns the contemporary pedagogical models adopted across EU universities, which combine blended learning, multimodal didactic solutions, digital gamification, inclusive design, and a multilingual approach. Gamification is not applied as a standalone feature but is integrated as a pedagogical strategy intended to enhance learner motivation and support active engagement in both blended and online formats. The principles of inclusivity embedded in the *Principles and Guidelines to Strengthen the Social Dimension of Higher Education in the EHEA* (EHEA, 2020) inform the design of digital courses, ensuring accessibility and equal participation for diverse groups of learners.

Alongside these positive developments, universities also take into account the risks of digitalisation outlined in the Digital Education Action Plan (European Commission, 2020), including digital inequality, data protection requirements, and cybersecurity concerns. These considerations underscore the need for balanced pedagogical design that leverages innovative digital approaches while safeguarding learners' rights and ensuring equitable access to digital education.

A further dimension of the analysis concerns **the challenges specific to the Ukrainian higher education context**. The combined evidence from the DigiFLEd benchmarking results (DigiFLEd Benchmarking Report, 2024) and current Ukrainian



regulatory documents shows that the digital transformation of language education is unfolding under a set of systemic constraints. These constraints arise from long-standing structural difficulties as well as from context-specific challenges aggravated by the war. One of the most significant barriers remains the condition of the technical infrastructure across higher education institutions. *The Concept of Digital Transformation of Education and Science of Ukraine* (Ministerstvo osvity i nauky Ukrayny, 2023) points to uneven resource provision and the technological obsolescence of equipment in many universities. At the institutional level, similar dynamics are reflected in the overview *Digitalisation of Education and Science During the Russo-Ukrainian War and Ukraine's Recovery* (Huraliuk et al., 2025), which highlights disparities in infrastructural capacity, the growing need to strengthen teachers' digital competence, and the broader challenges faced by educational transformation under wartime conditions.

In language education, this problem is especially prominent, as the effective development of communicative skills requires access to modern multimedia studios, reliable videoconferencing platforms, and high-quality workstations for processing audio and video content. Under wartime conditions, these limitations are further exacerbated by power outages, infrastructure damage, and shortages of equipment, all of which reduce universities' capacity to provide consistent digital support for learning.

An important component of digital modernisation is the development of teachers' digital competences. The launch in 2025 of the national *SELFIE for Teachers* study, initiated by the Ministry of Education and Science of Ukraine in cooperation with the ETF and the Ministry of Digital Transformation, reflects the system-wide recognition of the importance of this area. The tool is expected to provide the first standardised data on the digital proficiency of teaching staff; however, the results have not yet been released, leaving the issue of digital literacy in the higher education sector unresolved. Existing academic research indicates significant variation in the digital skills of university instructors and shows that the effectiveness of digital learning depends heavily on institutional support and the availability of CPD programmes (Huraliuk et al., 2025). In language education, this is particularly evident, as effective use of multimodal, interactive, and communicative tools requires both advanced pedagogical and technical expertise.

Despite the presence of general institutional plans for digital transformation, most universities still lack comprehensive strategies for the digitalisation of language education. This fragmentation is reflected in the absence of unified standards for structuring courses in Moodle, insufficient methodological support during the creation of digital resources, weak integration of digital ethics and academic integrity into the learning process, and underdeveloped mechanisms for supporting multimedia content. Unlike EU universities, where digitalisation is approached as a holistic process, Ukrainian institutions often implement it selectively, without systematically addressing the pedagogical, managerial, and ethical dimensions.

A separate challenge is the limited use of artificial intelligence and multimodal tools. Despite the accelerated adoption of digital formats during the war, AI tools are used in most universities only sporadically and without clear regulatory frameworks.



In many cases, institutions lack policies on the responsible use of AI, guidelines for disclosing tools employed, and systems that support automated feedback or multimodal simulations. This contrasts with European models, where AI integration is grounded in the principles of ethical use and academic integrity outlined in EU recommendations (EUA, 2020; European Commission, 2022).

An equally important challenge is the insufficient level of inclusivity and multilingualism in digital resources. A significant number of Ukrainian Moodle courses do not comply with the principles of Universal Design for Learning (UDL), which constitute a foundation of modern European educational ecosystems. Digital materials often lack adaptive formats for students with special educational needs, alternative types of content, subtitles, audio descriptions, or accessible interfaces. The shortage of multimodal materials and multilingual resources significantly restricts students' ability to follow flexible learning pathways.

The wartime context creates additional constraints that directly affect digital transformation. Regular power and connectivity outages, the forced displacement of students and instructors, the growing share of asynchronous learning, and the need to adapt courses for mobile devices all make digitalization not only a tool of modernization, but also a crucial means of ensuring the resilience of the educational process.

The analysis also points to a set of **practical recommendations** that emerge from the comparison of European models of digital transformation with the results of the DigiFLEd benchmarking report. Taken together, these sources suggest the need for a coordinated set of measures aimed at modernising language education in Ukrainian universities. A key priority is the institutionalisation of digital transformation through the development and adoption of university-wide strategies aligned with the European Union's policies on digital education (Council of the European Union, 2020; European Commission, 2020). Such strategic alignment is essential for giving digitalisation a systemic character and ensuring that it becomes an integral component of institutional development rather than a series of isolated or reactive initiatives.

One of the key avenues is the unification of Moodle course templates and the structuring of digital learning materials in line with the course template practices widely used in European universities. A standardised logic for course design will improve navigation, reduce students' cognitive load, and enhance the quality of online interaction.

At the same time, it is essential to strengthen digital support for teaching staff by establishing university digital learning centres (teaching hubs) that combine advisory, methodological, and technological functions. Such structures are an integral part of successful European models of digitalisation and provide instructors with access to specialist assistance during the development of digital resources, the implementation of blended learning, and the resolution of ethical issues related to the use of digital technologies.

Within this context, an important task is the expansion of the continuous professional development (CPD) system, aimed at developing digital didactics, multimodal course design, Universal Design for Learning (UDL), and the ethical use of artificial intelligence. These programmes should become not occasional training



sessions, but a stable component of universities' professional culture.

To strengthen student autonomy, it is advisable to upgrade the technical capacities of institutional platforms, particularly Moodle, by integrating multimodal tools, learning analytics systems, and artificial intelligence modules. The latter can provide individualised feedback, simulations of real communicative situations, and support for independent learning, provided that the provisions of the EU *Ethical guidelines on the use of artificial intelligence (AI) and data in teaching and learning for educators* (European Commission, 2022) are observed.

The further development of digital language education should also include the use of gamification elements as a didactic strategy capable of enhancing student motivation and engagement, as well as encouraging active interaction in blended formats. A crucial component is the development of inclusive and multilingual digital resources that align with the principles of the European Higher Education Area and ensure accessibility of learning for all categories of learners.

Taken together, these recommendations form the basis for a gradual and sustainable digital transformation of language education in Ukrainian universities, ensuring a balance between technological innovation, pedagogical appropriateness, and the requirements of European educational policy.

Conclusion. A comparative analysis of European practices in the digitalisation of language education demonstrates that successful transformation in this field is grounded in the combination of strategic governance, well-developed digital infrastructure, staff support, and the gradual implementation of innovative technologies. The benchmarking conducted within the DigiFLED project has outlined the key characteristics of the contemporary European model of digital language education and identified the components with the greatest potential for adaptation in Ukrainian universities.

These include, first and foremost, the importance of institutional coherence in digital policy, the presence of digital support centres for teaching staff, a systematic approach to CPD programmes, standardised methods for structuring Moodle courses, and the development of multimodal educational resources. Another significant direction is the integration of artificial intelligence technologies in accordance with European ethical requirements, which enhances student autonomy and creates additional opportunities for language practice in a digital environment.

In the Ukrainian context, the impact of the full-scale war brings both positive developments and persistent structural barriers, including uneven technical provision, varying levels of digital competence among instructors, and fragmented institutional approaches to digitalisation. In this regard, benchmarking becomes an important analytical tool that makes it possible to identify priorities for modernisation and compare national practices with European ones.

The results obtained may serve as a foundation for the development of modern digital programmes and strategies that will strengthen the resilience of the educational process under martial law, ensure high-quality language training, and support the gradual alignment of Ukraine's higher education system with the standards of the European Higher Education Area.



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