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A Report from the International Scientific Conference "Theoretical and Practical Aspects of Distance learning" DLCC2025 (www.dlcc.us.edu.pl) subtitled: "E-learning & Interactive Learning. Generative Artificial Intelligence (GAI), Gamification and Immersive Technologies (AR/VR) in Educational Practice and Research" which was held at the University of Silesia, Cieszyn, Poland on October 15 and 16, 2025

The 17th edition of the International Scientific Conference, "Theoretical and Practical Aspects of Distance learning" DLCC2025 (www.dlcc.us.edu.pl) was held under the theme "E-learning & Interactive Learning. Generative Artificial Intelligence (GAI), Gamification and Immersive Technologies (AR/VR) in Educational Practice and Research" on October 15th and 16th, 2025, at the University of Silesia in Katowice. It was organised by the Faculty of Arts and Educational Sciences in Cieszyn, Faculty of Social Sciences, the Faculty of Computer Science and Materials Sciences in Sosnowiec, the Institute of Pedagogy, and Institute of Computer Science, University of Silesia in Katowice, Poland.

The Conference was organized under the auspices of Rector of the University of Silesia in Katowice – Prof. dr hab. Ryszard Koziołek, Dean of the Faculty of Arts and Sciences of Education – Prof. dr hab. Katarzyna Marcol, Dean of the Faculty of Social Sciences – Prof. dr hab. Małgorzata Myśliwiec, Director of the Institute of Pedagogy – Prof. dr hab. Irena Polewczyk, Dean of the Faculty of Science and Technology – Prof. dr hab. Seweryn Kowalski, Director of the Institute of Computer Science – Prof. dr hab. inż. Rafał Doroz. The co-organisers were

the University of Ostrava (UO), the Czech Republic, Silesian University in Opava (SU), the Czech Republic, Constantine the Philosopher University in Nitra (UKF), Slovakia, University of Extremadura (UEx), Spain, University of Twente (UT), The Netherlands, Lisbon Lusiada University (LU), Portugal, Curtin University in Perth (CU), Australia, Borys Grinchenko Kyiv University (BGKU), Ukraine, Dniprovsk State Technical University (DSTU), Ukraine, IADIS – International Association for Development of the Information Society, a non-profit association, Polish Pedagogical Society, Branch in Cieszyn, Polish Scientific Society for Internet Education Association of Academic E-learning, Poland.

The Annual International Scientific Conference "Theoretical and Practical Aspects of Distance Learning" DLCC2025 is an important event within the field of education, particularly focused on distance learning and its practical applications. It is organized annually by prominent academic institutions, including the University of Silesia in Katowice, Poland, and co-organized with various international universities. This conference brings together scholars, experts, and educators from around the world to discuss advancements in distance education, e-learning, and technology-enhanced learning, which is critical as educational systems modernize worldwide.

Members of the International Programme Committee are experienced scientists, scholars, and researchers in the field of ITC and distance learning from many countries in Europe and worldwide. The Honorary Scientific Committee goes as follows:

- Prof. dr hab. Katarzyna Marcol, Dean of the Faculty of Arts and Educational Sciences, University of Silesia in Katowice, Poland
- Prof. dr hab. Małgorzata Myśliwiec, Dean of the Faculty of Social Sciences, University of Silesia in Katowice, Poland
- Prof. dr hab. Piet Kommers, Professor UNESCO, University of Twente, the Netherlands
- Doc. Ing. Katerina Kostolanyova, PhD, Vice-Dean of the Faculty of Pedagogy University of Ostrava, the Czech Republic
- Prof. dr hab. Inż. Jan Kusiak, Head of E-Learning Centre, University of Science and Technology in Cracow (AGH), Poland
- Prof. dr hab. Natalia Morze, Vice-Rector of the Borys Grinchenko Kyiv University, Ukraine
- Prof. Norbert Pachler, London University, United Kingdom
- Prof. dr hab. Irena Polewczyk, Director of the Institute of Pedagogy, University of Silesia in Katowice, Poland
- Prof. dr hab. inż. Rafał Doroz, Director of the Institute of Computer Science, University of Silesia in Katowice, Poland
- Prof. dr hab. Seweryn Kowalski, Dean of the Faculty of Sciences and Technology, University of Silesia in Katowice, Poland

- Prof., dr hab. Maciej Tanaś, Dean of the Pedagogical Faculty, Maria Grzegorzewska Academy of Special Education, Poland
- Prof., dr inż. Milan Turcani, Constantine the Philosopher University in Nitra, Slovakia
- Prof. dr. Pedro Veiga, Vice-rector of the Lisbon University, Portugal
- The conference topics include the following thematic sections:

1. E-learning & GAI, AR/VR, Gamification
   - Generative Artificial Intelligence (GAI), Augmented Reality (AR), Virtual Reality (VR)
   - E-learning & GAI, AR/VR, Gamification
   - AI in Education: perspective and challenges
   - AI Apps: ChatGPT, Gemini, DeepSeek, Copilot, Claud, Perplexity, Beyond
   - Students' and teachers' competences in the area of AI
   - Ethical and Social Aspects of AI
   - Machine Learning. Learning Analytics.
   - Immersive learning environments. Blockchain. ChatBots
   - E-learning and STEAM Education
   - Robots and Coding in education
   - Internet of things. 3D printing
   - STEM education contemporary trends and challenges
   - Distance learning in humanities and science
   - Quality of teaching, training in area of e-learning
   - E-learning for science and technologies
2. E-learning & Enhancing Key Competences.
   - Methodology and Tools Development
   - Use of e-learning in improving the level of specialists and students' digital competences
   - Innovative Educational Technologies, Tools and Methods for E-learning
   - Modern ICT Tools for e-learning in the time of COVID-19 and after pandemic – review, implementation, opportunities for effectiveness of learning and teaching
   - MOOCs – methodology of design, conducting, implementation and evaluation
   - Education 4.0 and Education 5.0
   - E-learning and effectiveness of using Learning Management System (LMS), CMS, VSCR, SSA, CSA
   - Cloud computing environment, social media, multimedia resources
   - Methodological tools. E-tutoring. (Video)tutorial design
   - Simulations, models in e-learning and distance learning
   - Successful examples of M-learning, e-learning
   - Evaluation of synchronous and asynchronous teaching and learning, methodology and good examples

3. E-learning & Enhancing Soft Skills:
   - Key competences and soft skills in the digital society
   - E-learning for humanities and social sciences
   - Self-learning based on e-learning and Internet technology
   - E-learning and online learning
   - Blended learning
   - Legal, social, human, scientific, technical aspects of distance learning and e-learning in different countries
   - European and national standards of e-learning quality evaluation
   - Psychological and ethical aspects of distance learning and e-learning
   - E-collaboration and e-communication in e-learning
   - E-environment of the Contemporary University
   - E-learning in a sustainable society. Ecosystem and green university
   - Comparative approach in research on e-learning
4. E-learning in the Transformation of Education in Digital Society: Training of the specialists and LLL
   - Contemporary trends in world of e-learning in conditions of globalization, internationalization, mobilities
   - Effective development of teachers' digital skills
   - E-learning and Lifelong Learning
   - E-environment and Cyberspace Security Development of Key and Soft Competences and E-learning
   - AI and Cyberspace. Cybersecurity
   - Networking, distance learning systems

Experts from many countries, such as Austria, Bulgaria, Croatia, the Czech Republic, Italy, the Netherlands, Pakistan, Portugal, Poland, Saudi Arabia, Slovakia, Taiwan, Turkey, the United Kingdom, and Ukraine, reflected on innovative educational technologies, tools and methods, particularly Generative Artificial Intelligence (GAI), for e-learning, as they presented their research results, contemporary trends and scientific, as well as educational projects devoted to Artificial Intelligence (AI), MOOCs, Augmented Reality (AR), Virtual Reality (VR), mobile learning and other topics related to digital technologies and innovative methods of education.

On the first day, 15 October, Prof. dr hab Eugenia Smyrnova-Trybulska started the annual international scientific event.

The Dean of the Faculty of Arts and Sciences of Education, Prof. dr hab. Katarzyna Marcol, welcomes conference participants and quest of the conference (Figure 1)

Figure 1. Prof. dr hab. Katarzyna Marcol, Dean of the Faculty of Arts and Sciences of Education openned the DLCC2025

Author of the photo: Emilia Gogol

Professor Prof. Dr. Piet Kommers from the Twente University, the Netherlands, presented a Keynote Lecture titled "Generative AI and Augmented Reality for Deep Learning" on the plenary session.

Figure 2. Keynote Speaker Prof. Dr. Piet Kommers

Author of the photo: Emilia Gogol

He presented experts' reflections, concerning education that evolved from print to the Web, expanding access to knowledge but also causing information overload. We learn that Generative AI, rooted in simulations, expert systems, and machine learning, enables hybrid knowledge by combining insights across disciplines. This aligns with the STEAM approach, which encourages teachers to integrate adjacent fields to enhance learning effectiveness. The keynote highlights how AI, together with STEAM and emerging VR/AR technologies, supports experiential, active learning. New educational media aim not only to improve traditional teaching but to prepare learners for a complex, innovation-driven society and future job market.

Subsequently, within the framework of conference session, Snježana Babić presented the lecture "Determinants Of Students' Perceived Usefulness Of Large Language Models: The Role Of Relevance, Enjoyment, And Ease Of Use". The expert introduced the audience to the topic of research and presented the Perceived usefulness (PU) is a key factor influencing the acceptance and use of technology. As large language models (LLMs) such as ChatGPT gain popularity in higher education, this study examined factors shaping students' perceptions of their usefulness.

Svitlana Skvortsova, Tetiana Symonenko, Kira Hnezdilova, Nataliia Andrusiak presented the lecture titled „Artificial Intelligence In Ukrainian Secondary Education: Empirical Insights Into Its Integration In Teaching Practice" This study of 1,873 Ukrainian secondary teachers found widespread AI use, mainly for lesson preparation and assessment. Primary, math, and ICT teachers use AI most, while arts and PE teachers use it least. Key barriers include accuracy, cost, language support, and skills gaps.

Nataliia Morze, Olha Barna, Oksana Pasichnyk, authors from Ukraine, in their research "Transforming School Informatics Education In The Ai Era: Paradigm Shift, Pedagogical Innovations, And Digital Competence", explored how AI is transforming school informatics education in Ukraine, shifting from a technocratic to an AI-integrated model. Based on teacher surveys and international frameworks, it highlights the need to update digital literacy, creativity, and data skills, while redefining learning goals toward higher-order thinking.

Researchers, Galina Momcheva and Todorka Glushkova from Bulgaria, in their lecture "AI Threat Modelling Active Learning", introduced the audience to a structured, game-based brainstorming method for AI threat modeling using PLOT4AI cards. Applied in STEAM problem-solving tasks, the approach enhanced technical reasoning, reflection, and skill development, while revealing learning gaps and career-related uncertainties.

Protugalian expert, Filipe Carrera, in his report "How To Transform Your Online Training Into Impactful Experiences", explores how effective digital dialogue can improve online training by addressing disengagement and fatigue. It argues for interactive, human-centered learning that blends active methods, emotional

connection, and digital tools, moving beyond one-way lectures to create engaging and impactful online education.

Researchers from Slovakia, Michal Kabát, Juraj Kovalčík, Magdaléna Švecová, Martin Paučin, presented the lecture "Activating the Potential of Generation Z Through Mindless Games: a Literature Review and Pre-Research Framework". This scoping review (2010–2025) shows that low-cognitive-load digital activities, such as micro-breaks and fidgets, can help Gen Z learners sustain attention, reduce fatigue, and improve engagement without harming performance. However, evidence in educational settings remains limited and fragmented.

After the break, two Workshops were held: "Learning with Interactive Kebbi Air Robot, AI and IoT in Pre-school and Primary Education", conducted by Eugenia Smyrnova-Trybulska, Małgorzata Przybyła-Kasperek, Kornel Chromiński, and Tomasz Kopczyński. They presented theoretical and practical aspects of using Kebbi Air Robot in Pre-school and Primary education (Figure 3 a), b)).

In the framework of the second Workshop: "Overview of proprietary VR modules related to geometry", conducted by Jacek Stańdo, Tomasz Kopczyński, Adam Nowak, Anita Dąbrowicz-Tlałka, Katarzyna Kujawska, Magdalena Musielak interesting practical examples of using VR modules in geometry learning and teaching were presented, elaborated during implementation of the Math3DGeoVR project Mathematical Models for Teaching Three-Dimensional Geometry Using Virtual Reality, 2021-1-PL01-KA220-HED-000030365 https://www.math3dgeovr.p.lodz.pl/ (Figure 4. a), b)).

a)

b)

Figure 3. a), b) Workshops: “Learning with Interactive Robot Kebbi Air, AI and IoT in Pre-school and Primary Education”, conducted by Eugenia Smyrnova-Trybulska, Małgorzata Przybyła-Kasperek, Kornel Chromiński, Tomasz Kopczyński (a). Participants of the Workshops (b)

Author of the photo: Emilia Gogol

a)

b)

Figure 4. a), b). Workshop: "Overview of proprietary VR modules related to geometry", conducted by Jacek Stańdo, Tomasz Kopczyński in presense, and Adam Nowak, Anita Dąbrowicz-Tlałka, Katarzyna Kujawska, Magdalena Musielak online

Author of the photo: Emilia Gogol

The second day (October 16), in the framework of DLCC2025 conference, started with the round table debate "E-learning & Interactive Learning. Generative Artificial Intelligence (GAI), Gamification and Immersive Technologies (AR/VR) in Educational Practice and Research", moderated by Prof. Eugenia Smyrnova-Trybulska and Dr Iwona Mokwa-Tarnowska. The participants of the debate were experts from eight countries: Prof. Piet Kommers – the Netherlands, Prof. Todorka Glushkova – Bulgaria, Prof. Nataliia Morze – Ukraine, Prof. Snježana Babić – Croatia, Prof. Štefan Gubo – Slovakia, Prof. Małgorzata Przybyła-Kasperek – Poland, Prof. Filipe Carrera – Portugal, Dr Miroslav Hruby – the Czech Republic (Figure 5. a), b)). The agenda included five topics: Question 1: What are the main benefits and limitations of applying Generative Artificial Intelligence (GAI) in educational content creation and personalized learning? Question 2: How can gamification integrated with immersive technologies (AR/VR) enhance learning effectiveness, and what barriers limit its successful implementation? Question 3: How can good teachers evolve towards even better teachers, even in the era of AI, VR, and Game-based Learning? How are the roles of teachers and educational researchers

changing in interactive learning environments supported by technologies such as GAI and AR/VR? Question 4: How can the availability of AI transform education into more autonomous/authentic learning attitudes, creative problem solving, and prepare for new jobs and future citizenships in terms of counterproductivity? Question 5: Under what conditions do interactive technologies (GAI, AR/VR, gamification) truly improve learning outcomes, and when might their impact be limited? Question 6: Does the availability of AI imply higher learning goals to be imposed?

During the plenary and conference session, on the second day of the conference, the researchers and participants were presented with 24 lectures, and workshops. The workshop ”FITPED-GAI: Empowering Future Educators with Generative AI” was held, conducted by prof. Małgorzata Przybyła-Kasperek and dr Kornel Chromiński.

In total, the conference included 31 presentations, three workshops, a round table debate and a poster session.

The DLCC2025 conference was actively attended by 87 participants (Figure 4) in presence and in online remote mode from over 12 countries; 18 from Poland, including 10 from the University of Silesia, and 59 from abroad. There were also over 100 passive participants.

The articles developed based on the conference participants' papers have been planned for publishing in the monograph on “E-learning & Interactive Learning. Generative Artificial Intelligence (GAI), Gamification and Immersive Technologies (AR/VR) in Educational Practice and Research” by the renowned Springer publishing house.

a)

b)

Figure 5. a), b) Participants of the round table debate "E-learning & Interactive Learning. Generative Artificial Intelligence (GAI), Gamification and Immersive Technologies (AR/VR) in Educational Practice and Research"

Author of the photo: Emilia Gogol

Considering the international scope and involvement of respected institutions, the DLCC2025 conference is a significant international scientific event for a wide range of scientists, teachers, PhD students, students, educators, tutors, mentors, and anyone interested in the future of education, especially in the context of digital learning environments and the implementation of new technologies and innovative methods. The photo reports from DLCC2025 conference are available in the conference photo gallery (https://dlcc.us.edu.pl/gallery/)