iLed

iled-project.eu

Innovating Learning Design in Higher Education

Results of an innovative and collaborative journey shaping the future of learning design in higher education

iLed Info Card

The **iLed innovation capacity** rests on the **co-creation and purposeful use of innovative digital pedagogies, technologies, tools and learning design (LD).**

CALL	Erasmus+ KA220-HED Cooperation partnerships in higher education
CALL PRIORITY	HORIZONTAL: Addressing digital transformation through development of digital readiness, resilience and capacity HE: Stimulating innovative learning and teaching practices HE: Promoting inter-connected higher education systems
PROJECT TITLE	Innovating Learning Design in Higher Education
ACRONYM	iLed
TOTAL BUDGET	400 000 EUR
DURATION	36 months (B: 3/10/2022; E: 2/10/2025)

Co-funded by the Erasmus+ Programme of the European Union

Partners

iLed was powered by a **multidisciplinary team of partners from four European countries**, combining pedagogical expertise, technological innovation, and institutional experience.

UNIVERSITY OF ZAGREB (UNIZG)
Faculty of Organization and Informatics (FOI)
Coordinator

School of Medicine (SoM)

GOETHE UNIVERSITY (GOETHE UNI)

THE OPEN UNIVERSITY (OU)

UNIVERSITY OF OULU (UNI OULU)

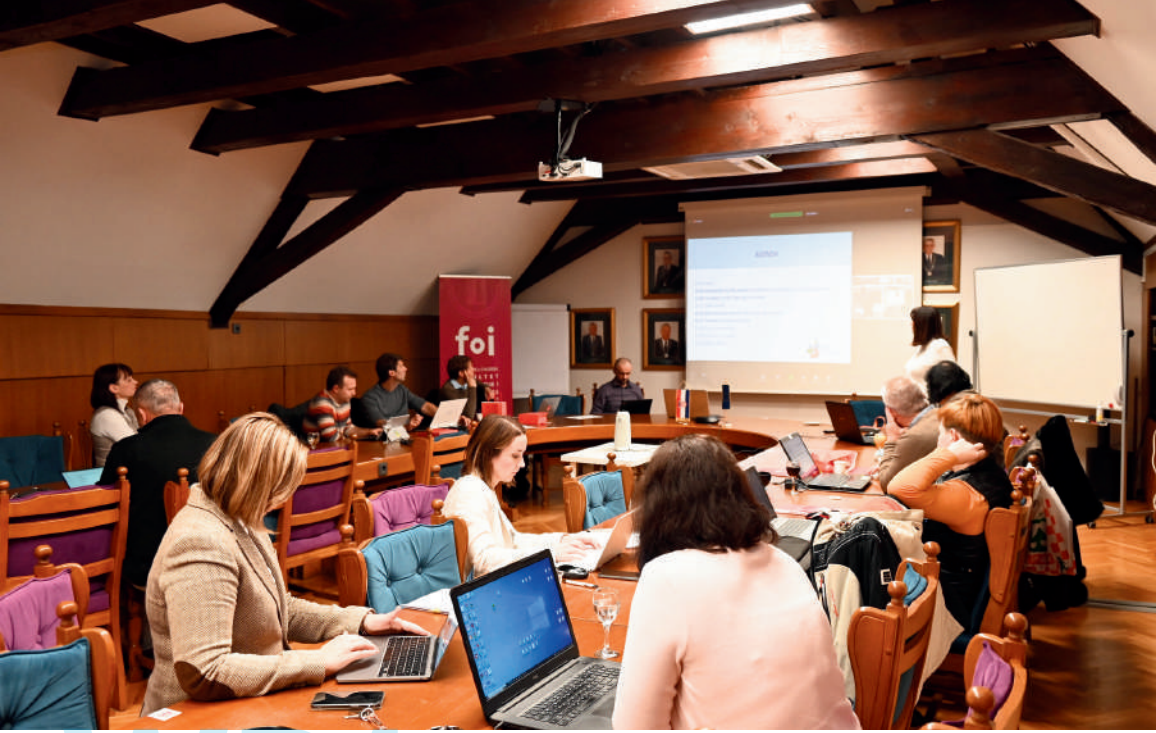
Project objective

...to **enhance digital readiness, resilience and capacity of HE** through **purposeful use of innovative digital pedagogies, tools and learning design** (LD).

Specific objectives

- **SO1:** Supporting further implementation of learning outcomes (LOs) and student-centered curricula via development of innovative LO-based LD concept and tool, available in several languages, and their evaluation in international HE contexts
- **SO2:** Co-creating LD implementation in authentic learning situations in virtual and blended learning environments to support effective learning and meaningful implementation of innovative pedagogies and tools
- **SO3:** Innovating HE curricula through sound LD using innovative digital tools and pedagogies, enabling flexible learning pathways, supporting modular approaches, mobility and trust in microcredentials
- **SO4:** Building the capacities of HEIs, primarily skills and competences of teachers, for meaningful implementation of TL and assessment aligned with contemporary learning theories and approaches, supported by OER and tools

Structured into 5 work packages



WP1

Project management

Start: 3/10/2022 End: 2/10/2025; Lead: UNIZG FOI

The aim of this work package was to **ensure smooth coordination, continuous monitoring, and proactive risk management** throughout the iLed project. Responsibilities were clearly distributed across the team, covering project coordination, financial tracking, quality assurance, and communication, supported by digital tools. Green and inclusive practices were embedded in all management activities to ensure transparency, sustainability, and effective collaboration.

Supporting documents:

- Project management plan
- Quality management plan
- Risk management plan
- Impact framework
- Green and inclusive practices

Led by FOI – Powered by collaboration

WP2 Upgrading the LD concept & tool

Start: 3/10/2022 End: 30/09/2025; Lead: UNIZG FOI, SoM Co-lead: OU

The aim of this work package was to **support further implementation of learning outcomes and student-centered curricula via development of innovative LO-based learning design concept and tool**, available in several European languages, and their evaluation and verification in international HE contexts.

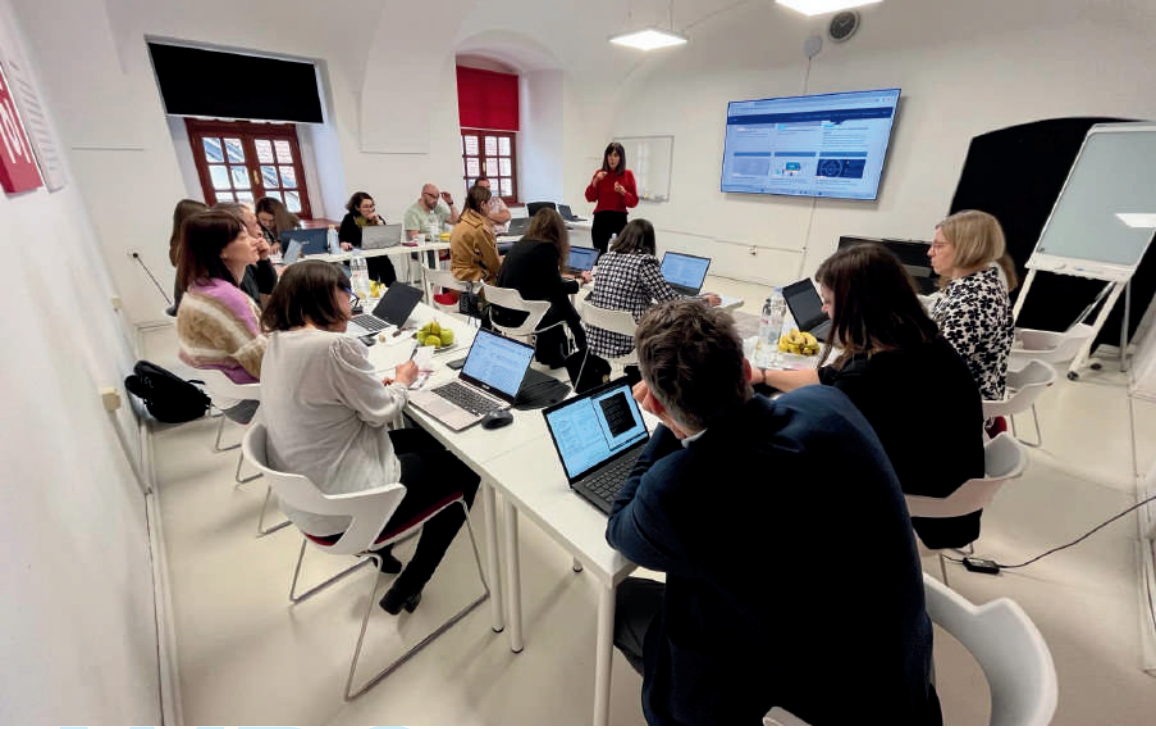
Results:

- Evaluation report on the LD concept and tool
- Improved LD concept - published paper
- Upgraded LD tool - Balanced Design Planning tool, free to use, available online in English
- The LD tool translated and made available in four European languages (Croatian, German, English, Finnish)

Balanced Design Planning tool

Innovative tool free to use!

learning-design.eu



WP3 Validating LD in authentic online and blended L&T environments, based on LOs and using LA inventory (methods & tools)

Start: 1/05/2023 End: 31/03/2024; Lead: OU, Co-lead: Goethe Uni

The aim of this work package was to **co-create and orchestrate LD implementation in authentic learning situations in virtual and blended learning environments** in order to support effective learning and meaningful implementation of innovative pedagogies and tools.

Results:

- Report on eleven authentic learning situations in virtual and blended learning environments which can benefit from innovative pedagogies enhanced by the LD concept
- Recommendations for implementing LD in an LMS for authentic learning situations
- A pilot on scaffolding of courses in an open LMS using the LD tool, using LA to support further development of a particular LD

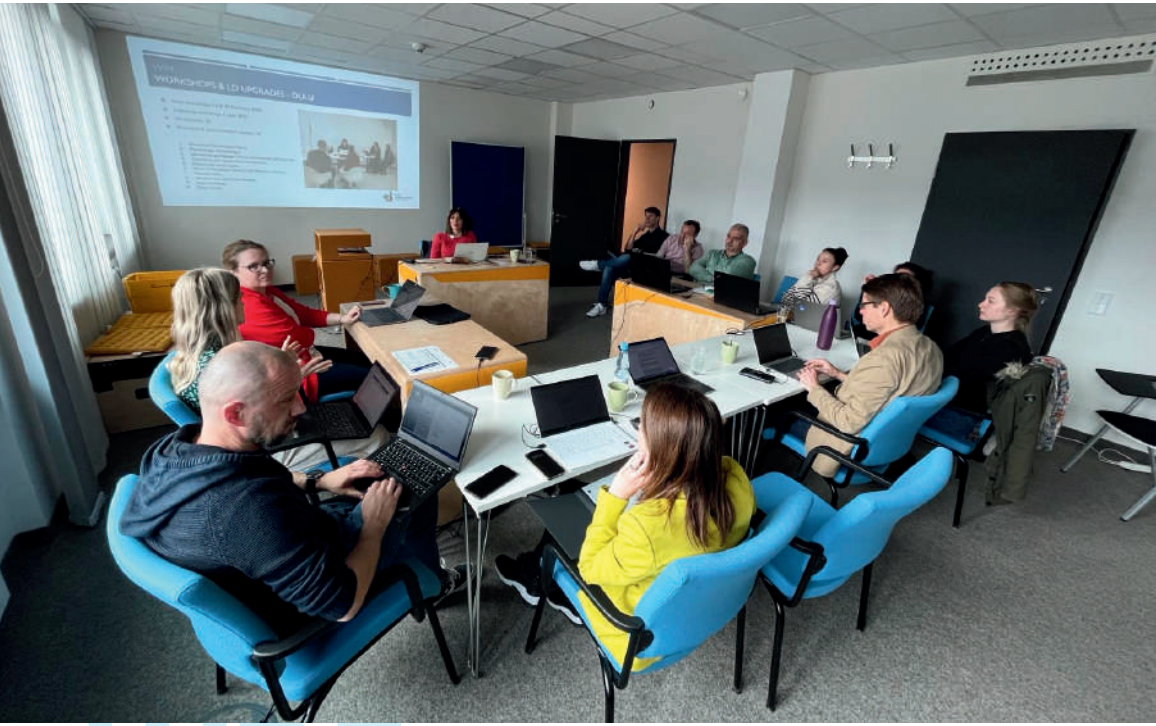
WP4 Using LD to support the implementation of innovative digital pedagogies in course restructuring/ enhancement/ improvement

Start: 1/09/2023 End: 30/09/2024; Lead: UNI OULU, Co-lead: OU

The aim of this work package was to **innovate HE curricula through meaningful implementation of LD, enabling flexible learning pathways, and supporting modular approaches, and promoting mobility and trust in micro-credentials**, using innovative digital tools and pedagogies.

Results:

- Enhanced competences of more than 40 teachers related to innovative digital pedagogies and tools
- Innovated more than 30 curricula by using LD, in line with innovative digital pedagogies and promoting flexible learning pathways
- Catalog of meta-data based on LD as a basis for micro-credentials



WP3 Enhancing digital pedagogy competences of teachers through open educational resources

Start: 1/4/2024 End: 31/7/2025; Lead: GOETHE UNI, Co-lead: FOI

The aim of this work package was **to create a MOOC for teachers, curriculum developers and decision makers** to support the needed capacity building of methodological knowledge and competences of higher education institutions.

Results:

- LD for the MOOC
- MOOC created and populated with content in an LMS
- Enhanced competences of more than 60 teachers participating in the blended delivery of the MOOC
- Mechanisms for issuing digital credentials for teachers
- Final conference, July 2025, University of Zagreb, School of Medicine, Zagreb

iLed's Contribution to the Future of Teaching

Co-creating a Future-Oriented Learning Design Tool

The iLed project builds on previous Erasmus+ projects, primarily RAPIDE. It began with further enhancing the Balanced Design Planning (BDP) tool - an innovative tool that supports LD with a strong focus on constructive alignment of LOs, teaching and learning activities, and assessment. The BDP tool was iteratively refined in collaboration of project partners, based on educator feedback and real-world application. The tool supports four European languages (English, Croatian, German, Finnish), includes built-in learning analytics, and is designed for use across diverse disciplines and institutional contexts. It supports seamless integration with learning management systems (LMS) such as Moodle.

Validating Learning Design in Authentic Teaching and Learning Contexts

To ensure pedagogical relevance and real-world applicability, the project engaged with 95 stakeholders from partner institutions to identify 11 authentic teaching and learning scenarios, which were then used to validate the tool in real academic contexts. These scenarios reflect diverse pedagogical approaches and teaching formats, including: flipped classroom, using AI in education, hybrid teaching in large collaborative classroom, game-based learning, hybrid learning with small groups, inquiry-based learning, problem-based learning, project work in virtual environment, simulation, student engagement in learning design, virtual reality/augmented reality. These scenarios were used to enhance the LD of real courses in partner institutions, demonstrating the flexibility and pedagogical value of the BDP tool.

Results at a Glance

Empowering Educators and Transforming Courses

Through targeted professional development, over 40 higher education teachers were trained in using the BDP tool and applying innovative digital pedagogies. This led to the redesign of 37 courses, with the implementation of enhanced courses reaching over 2,000 students at partner institutions. Student feedback highlighted the value of transparent course design and clear alignment with intended learning outcomes. This phase of the project not only improved course quality but also demonstrated how digital tools like BDP can support curriculum innovation at scale, fostering pedagogical consistency. Teachers reported increased confidence in designing aligned, flexible courses.

Recognising Competences and Scaling Innovation

A MOOC titled “Learning Design in the AI Era” was developed and piloted on the learn.foi.hr platform in blended mode, enrolling over 200 participants from the partner institutions and beyond. Structured in five modules, the MOOC combines open educational resources, practical tasks, and the BDP tool to build teaching competences in learning design and digital pedagogy. A mechanism for the automatic issuing of Europass-compatible digital credentials was built directly into the BDP tool, supporting micro-credentialing across Europe. By combining pedagogical innovation, technical implementation, and European-level interoperability, the iLed project has delivered a comprehensive, research-based solution for learning design that supports flexible, student-centered education and empowers educators to lead curriculum transformation across institutional and national boundaries.

iLed MOOC
Learning Design in the AI Era

The aim of the course is to guide participants through the most important concepts, practices and issues pertaining to designing learning in this exciting, but challenging era. Moreover, the course aims to encourage discussion among participants from different educational contexts, exploring the variety of perspectives.

This course is aimed primarily at higher education teachers, but can also be used by K-12 teachers, pre-service teachers and lifelong learning trainers.

Learning outcomes:

- Implement innovative pedagogies in HE teaching and learning (TL)
- Create learning design of a course based on LOs and constructive alignment
- Use learning analytics, especially design analytics, to upgrade course(s)
- Meaningfully apply contemporary technologies and AI in TL
- Orchestrate learning design (developing content and LMS activities based on learning design)
- Self-evaluate the implementation of own course(s)

Workload: 60 hours (*corresponds to 2 ECTS*)

Topics:

- Learning Outcomes & Constructive Alignment
- Innovative Teaching & Learning Strategies
- Learning Design
- Implementation, Evaluation & Learning Analytics
- AI Opportunities & Risks

Each topic offers practical, hands-on experiences, supported by interactive activities and the BDP tool -
together representing a comprehensive course aimed at boosting digital readiness and pedagogical resilience.

Learn. Design. Lead.

Join the MOOC: Learning Design in the AI era

Are you a teacher, trainer or curriculum designer looking to future-proof your teaching?

This free, hands-on self-paced course will guide you through the essentials of innovative pedagogies, learning design, and ethical use of AI in education.

learn.foi.hr

Start now: Scan & explore the future of teaching!

Publications and highlights

Rienties, B., Balaban, I., Divjak, B., Grabar, D., Svetec, B., Vondra, P. (2023). Applying and Translating Learning Design and Analytics Approaches Across Borders. In: Viberg, O., Grönlund, Å. (eds) Practicable Learning Analytics. Advances in Analytics for Learning and Teaching. Springer
The lessons learned of applying and translating LD and LA approaches could help to inform educators how to use existing LD and LA approaches and adapt them to their institutional needs.

Divjak, B. (2024). Navigating Strategic Challenges in Education in the Post-pandemic AI Era, Proceedings of AIED 2024
We should make sure that human-related decisions are made by humans, and not machines.

Divjak, B., Bađari, J., Grabar, D., Horvat, D., Vondra, P., Rienties, B. (2023). Enhancing Learning Design through User Experience Research: Insights from a Survey in Four European Countries. Proceedings of CECIIS 2023
Our findings emphasize the importance of learning outcomes and constructive alignment as crucial components of learning design.

Divjak, B., Svetec, B., Rienties, B., Astles, P., Matthews, C., Tillmann, A. Eichhorn, M., Schmitt, J. (2024). Prioritizing Learning Outcomes in Different Learning Design Contexts. Proceedings of CECIIS 2024
Sound learning design relies on constructive alignment, which calls for meaningful prioritization of LOs, reflecting their relative importance.

Divjak, B., Svetec, B., Horvat, D. (2024). How can valid and reliable automatic formative assessment predict the acquisition of learning outcomes?, Journal of computer assisted learning
The study confirms that automatic formative assessment of learning outcomes using relative weights is valid and reliable, and that it can significantly support students' self-regulation and ownership of learning.

Divjak, B., Grabar, D., Svetec, B., Vondra, P. (2024). Automating the Comparison of Learning Design and Delivery Using Course Scaffolding in Moodle, INFORMATICS 2024 PROCEEDINGS
The most significant achievement in this direction is the automatic scaffolding of a course in the open LMS Moodle directly from the BDP LD tool.

Divjak, B., Barthakur, A., Kovanović, V., & Svetec, B. (2025). The impact of learning design on the mastery of learning outcomes in higher education. Proceedings of LAK25

We found that some LOs can have a central position in the study program, being strongly linked to other LOs, which should be adequately reflected in assessment and learning design.

Scientific Reach
Research-backed innovation

Divjak, B., Svetec, Vondra, P., Bađari, J., Grabar, D. (2025). Learning Design with an AI Assistant, AIED 2025, Palermo, Italy

Users generally appreciated the assistance provided by LeDA, especially when it comes to lower levels of learning design (units and TLAs), while they were more critical about LeDA's outputs at higher levels (learning outcomes and topics).

Albuquerque, J., Rienties, B., & Divjak, B. (2025). Decoding learning design decisions: A cluster analysis of 12,749 teaching and learning activities. Proceedings of LAK 2025

The findings suggest most educators use a combination of four common LD TLAs (i.e., Collaboration, Generating independent learning, Assessment, and Traditional classroom activities).

Posters

Divjak, B., Vondra, M., & Grabar, D. (2023). Exploring open questions in Balanced Design Planning: Leveraging design analytics and AI to advance learning design in the business sector. CECIIS 2023 (Best poster award)

Divjak, B., & Svetec, B. (2024). Innovating learning design with the BDP tool. Conference Transforming Education: Opportunities and Challenges to Enhance the Future of Education in the Gulf Countries, Kuwait

Divjak, B., Bađari, J., Grabar, D., Svetec, B., Vondra, P. (2025). Educator - AI Partnership: Paving the Way to Sound Learning Design. LAK 2025

Gedrimiene, E., Korpi, J., Silvola, A., & Muukkonen, H. (2025). Visualized Course Design Analytics - A Case Study for Blended Learning. CSCL 2025

Takalo-Kastari, H., Gedrimiene, E., Kajamaa, A., Kulmala, P., & Muukkonen, H. (2025). Teachers' Experiences of Learning Analytics Support for Learning Design in Higher Education. CSCL 2025

iLed Key Takeaways

Learning design matters – and scales.
iLed proved that learning outcome-based learning design improves teaching and learning. Using the BDP tool, educators across countries and disciplines created well-aligned, high-quality courses, showing that good learning design can scale across contexts.

Digital tools drive pedagogy, not just content.
The BDP tool empowers educators to rethink course structure using learning analytics, workload balance, and innovative pedagogies like flipped classroom, inquiry-based, and work-based learning.

Micro-credentials need structured design.
The BDP tool was upgraded to support the automatic issuing of Europass-compatible digital micro-credentials. This integration simplifies credentialing, ensures compliance with EU standards, and promotes transparency and recognition across Europe.

Professional development must be open and scalable.
The free MOOC Learning Design in the AI Era reached 200+ educators during its pilot and is now openly available as a self-paced course supporting professional development across Europe.

Learning analytics and AI belong at the design stage.
Rather than just monitoring students after a course starts, iLed shows how analytics and AI can be used early - during course planning - to develop pedagogically sound learning design.

Adoption needs co-creation and adaptation.
BDP tool considers the needs of educators in different contexts: it has beed translated, user-tested, and iteratively improved with educators.

Evidence-based LD powers future-ready universities.
Through tools, training, and research, iLed positioned learning design as a foundation for quality, flexibility, and digital transformation in higher education.

25th International Conference on Artificial Intelligence in Education (AIED2024), Recife, Brazil: keynote by B. Divjak

iLed teams

UNIVERSITY OF ZAGREB

Faculty of Organization and Informatics

- Core team: Blaženka Divjak (Coordinator), Barbi Svetec, Darko Grabar, Petra Vondra
- Wider team: Z. Erjavec, P. Žugec, I. Mavrek, M. Bosak, K. Pažur Aničić, N. Kadoić, N. Begičević Ređep, B. Šlibar, B. Žugec, M. Jakuš, J. Bađari. V. Kirinić, N. Žajdela Hrustek, V. Strahonja, T. Šestanj Perić, J. Gusić Munđar, I. Dvorski Lacković

School of Medicine

- Mirza Žižak (Team Lead), Lea Škorić

GOETHE UNIVERSITY

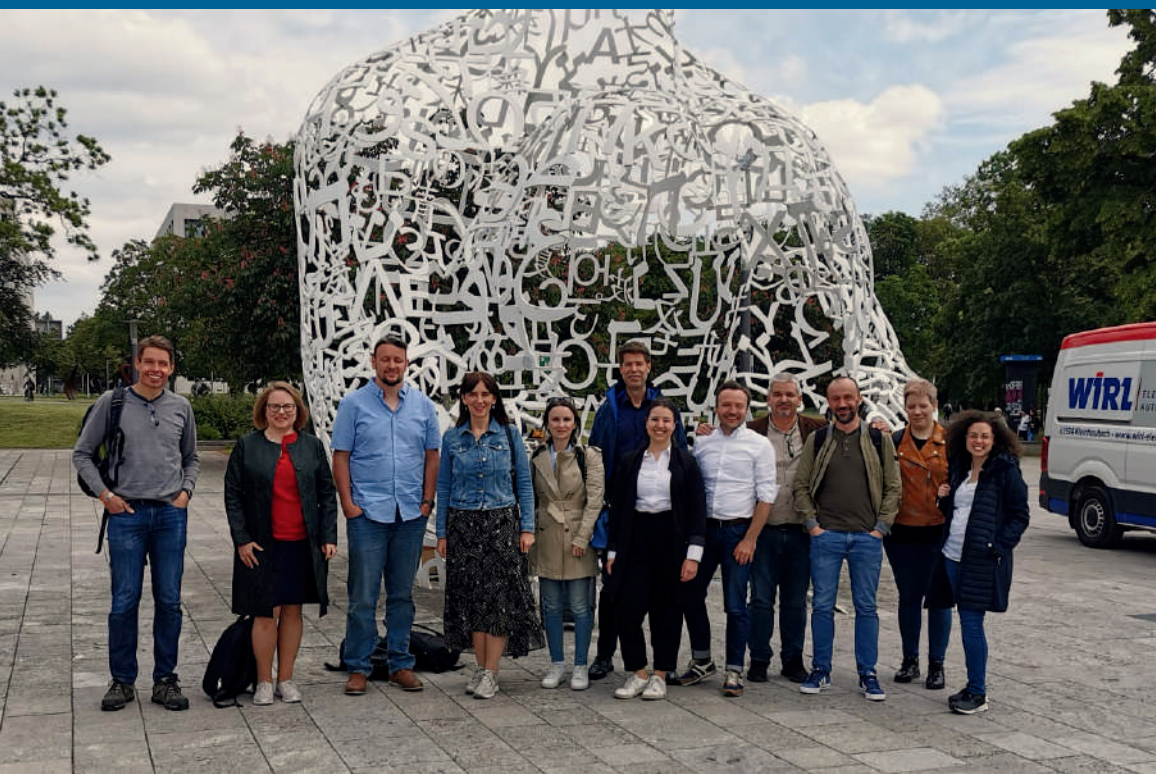
- Alexander Tillmann (Team Lead), Michael Eichhorn, Angela Rizzo, Julia Schmitt

OPEN UNIVERSITY

- Bart Rienties (Team Lead), Paul Astles, Catriona Matthews

UNIVERSITY OF OULU

- Hanni-Mari Muukkonen-van der Meer (Team Lead), Egle Gedrimiene



Key presentations of iLed results and activities

- 13th, 14th, 15th Learning Analytics and Knowledge Conference (LAK), Arlington, Texas; Kyoto, Japan; Dublin, Ireland; workshops on learning design, two papers by team members; 3/2023, 3/2024, 3/2025
- Learning Analytics in Higher Education 2023, keynote by B. Rienties; 11/2023
- EDUTECH ASIA 2023, Singapore, keynote by B. Rienties; 11/2023
- European Digital Education Hub: When Would the Data and Technology Inspire Education?, lecture by B. Rienties; 11/2023
- 33rd and 34th Central European Conference on Information and Intelligent Systems, Dubrovnik, Varaždin, Croatia: two papers and a poster, keynote by B. Rienties and H. Muukkonen; 9/2023, 9/2024
- Study visit to Australian (Monash University, University of South Australia and University of Technology Sydney) and Singaporean universities (Nanyang Technological University and National University of Singapore): B. Divjak, V. Kirinić; 2/2024
- 25th International Conference on Artificial Intelligence in Education (AIED2024), Recife, Brazil: keynote by B. Divjak
- 10th Flexible Futures Conference, University of Pretoria, South Africa: invited lecture by B. Divjak; 8/2024
- 14th International Conference on Education, Research and Innovation (ICERI), Seville, Spain: keynote by B. Rienties; 11/2024
- Conference on Challenges in Transforming Education and Enhancing the Future of Education in the Gulf Countries, Kuwait; keynote by B. Divjak, poster by B. Divjak and B. Svetec; 11/2024

- Inter-Regional Research Symposium (IRRS) Transforming Higher Education: Towards Sustainable Development, Bangkok, Thailand: B. Divjak in a debate; 11/2024
- Learning Analytics in Practice 2024, 2025: presentations and demos
- Computer and Learning Research Group (CALRG), The Open University: B. Rienties, C. Matthews, P. Astles; 2/2025
- International Society of the Learning Sciences 2025 (ISLS), Helsinki, Finland; posters by H. Muukkonen and E. Gedrimiene; 6/2025
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iLed

Learning Design. Empowered.

Find us here:

E-mail	iled@foi.unizg.hr
Website	iled-project.eu
MOOC	learn.foi.hr

Prepared by:
Professor Blaženka Divjak, PhD (iLed Coordinator)
Petra Vondra, M. Inf. (iLed team member)
Barbi Svetec (iLed team member)
University of Zagreb Faculty of Organization and Informatics

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