

The 3rd LAK InnovateDesign Workshop: Building a Triangle between Learning Design, Artificial Intelligence and Learning Management Systems

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ABSTRACT: The **1st** LAK InnovateDesign workshop was dedicated to introducing an innovative concept of learning design (LD) and a complimentary tool for creating and analyzing LD. The **2nd** workshop focused on the evolving challenges intertwined with AI's role in LD. Building on the previous workshops, the objective for the **3rd** workshop is twofold: 1) To provide a platform for exchanging experiences, showcasing research findings, and deliberating on the challenges that lie at the intersection of learning analytics (LA) and AI-supported LD. This encompasses harnessing the possibilities of combining design analytics with learning management system (LMS) data and finding meaningful ways to support that by AI. 2) To introduce participants to the latest developments of an innovative, free, AI-supported LD tool (learning-design.eu) and its capabilities, especially the scaffolding of courses in an LMS based on the LD prepared in the BDP tool. Participants will explore advanced LD analytics using this tool and be invited to collaboratively refine the LD of their courses, programs, or quality assurance endeavours, examining the LA data generated by the tool. They will be invited to exchange ideas and their LDs. This half-day, in-person workshop is a collaborative effort by three esteemed universities from Europe and Australia.

Keywords: learning design, learning analytics, assessment, learning management system, artificial intelligence

1 INTRODUCTION AND BACKGROUND

Learning design (LD) has been defined as “the documented design and sequencing of teaching practice” (Lockyer et al., 2013, p. 1439), describing the order of learning tasks, resources and related support. It has been presented as a methodology helping teachers and designers in more informed decision-making related to the design of learning activities (Conole, 2013), that is “pedagogically informed” and uses resources and technologies in an effective way. In essence, LD has two dimensions - a conceptual and a technological one. The concept of LD has been related to the notions of sharing and reusing: it helps make the design process “more explicit and shareable” (Conole, 2013) and aims at “reusability” in different educational contexts (Lockyer et al., 2013). It has been argued (Conole, 2013) that more explicit and shareable design enables more effective learning environments and teachers’ interventions while enabling learners to understand their learning paths better.

To ensure that LD is pedagogically sound, it is essential to ensure constructive alignment (Biggs, 1996) between intended learning outcomes (LOs), teaching and learning activities (TLAs), and assessment (Divjak et al., 2024), and pay attention to the respective student workload. Achieving this can be strongly backed by learning analytics (LA) (Divjak et al., 2022, Divjak et al., 2023), which has been increasingly used to support LD (Rienties et al., 2017). Especially rich insights supporting the

development and continuous improvement of LD can be provided by sophisticated AI-based LA using LMS data (e.g. to make predictions, as in Divjak et al., 2024), but there is also a significant potential of AI in providing assistance in the creative LD process and real-time feedback based on LD data. On the other hand, today there is also a great necessity to include AI-related LOs, activities and content into LD in a meaningful and sound way (Dai et al., 2023; Crompton & Burke, 2023). The aim of this workshop is therefore to discuss not only how to use AI as an element of LD, but also how to use it to support the creative process of LD.

Considering the recognised benefits of LD in enhancing teaching and learning in a digital age and supporting HE teachers (Divjak et al., 2022), since 2020, a concept and a web-based tool supporting the development of sound LD, strongly supported by LA, have been developed. The Balanced Learning Design Planning (BDP) concept and tool build on the current research, theory and practice related to LD, and the existing LD concepts, primarily the OULDI approach by the Open University UK (Conole, 2013; Rienties et al., 2017), and the ABC LD approach by the University College London (Laurillard et al., 2013). However, the BDP also introduces a great amount of innovation, with continuous updates reflecting state-of-the-art technological advancements, introduced in the design cycle process.

To start with, the BDP concept and tool enable linking course LOs with the study program LOs, providing an institutional perspective, which is valuable as research has indicated that students benefit from long-term study program-level planning (Raković et al., 2022). Furthermore, the BDP tool focuses strongly on ensuring constructive alignment between LOs, types of TLAs, assessment, feedback and student workload, supporting a student-directed approach (Divjak et al., 2024). It provides rich and deep analytics of course LD which can be used to further improve LD, in line with the intended - preferably innovative - pedagogical approaches (e.g., problem-based learning, flipped classroom, AI-related). In particular, these analytics provide detailed analyses and visualizations of assessment, minding its alignment with the prioritization, level and weights of LOs. The analytics are provided in real-time, through a dedicated dashboard, and can be used as a valuable input directing the LD process. Furthermore, the tool enables collaborative work and sharing of LDs, as well as the export of LDs. Here, one of the latest and most advanced export functionalities enables the scaffolding of a course designed in the BDP tool automatically in the Moodle LMS, providing a high practical value in course preparation. Finally, the latest developments are related to exploring the possibilities of generative AI in providing real-time assistance in the LD process.

The BDP tool can be used in a simple and an advanced version, enabling different levels of planning and analytics, and both versions are free to use. At present, the BDP tool has been used in the design of more than 1800 courses and MOOCs, by over 1800 users from more than 40 countries.

2 LEARNING OUTCOMES, WORKSHOP STRUCTURE AND WEBSITE

Based on the capacity-building at the workshop, participants will be able to (1) analyse the benefits of LA, including AI-based tools, for improvement of LD, (2) effectively use a free-to-use LD tool, supported by AI, and (3) create LDs and scaffold courses in an open LMS. The half-day workshop, organized in cooperation of three universities, will be held face-to-face, consisting of the parts

presented in the table below. The expected number of participants is between 15 and 30. Participation in previous workshops is not a prerequisite for this year's session.

Table 1. The proposed agenda of the workshop

Duration	Description	Responsible
10 min	INTRODUCTION	Organizer 1
	SHARING and DISCUSSION	Organizer 2
20 min	Principles of sound LD - presentation and discussion	Organizer 1, 2, 3
	How can the BDP tool be used together with AI and courses automatically scaffolded in an open LMS - presentation	
60 min	Showcasing and interaction with LDs - interaction	Organizer 1, 2, 3
	Finding interesting RQs - discussion	
30 min	BREAK for tea and coffee	
	HANDS-ON COLLABORATION ON LEARNING DESIGN	
60 min	Designing with AI-supported BDP LD tool - work in groups	Organizer 1, 2 & 3
20 min	Presentation of LDs and discussion	Organizer 2
10 min	FUTURE STEPS AND CONCLUSIONS	Organizer 1, 2 & 3

The workshop will be supported by a dedicated website, where all related information will be shared, and which will support pre-workshop data gathering and planning, including the application of participants. To advertise the workshop to participants, we will use the workshop and SoLAR websites, and social media. After the workshop, the website and the social media will be used to support ongoing dissemination. The website will include the following sections: About, Background, Literature and Material, Workshop Agenda, and Submission Area.

3 SHARING OF EXPERIENCES, RESEARCH AND CHALLENGES

The workshop will start with a few short presentations by the workshop organizers, focusing on the current research, practices and experiences in the use of LD, complemented by interactive showcases of selected course LDs. A special focus will be on the principles of sound LD and how LA and LD analytics can support sound LD and how AI-related LD can be implemented. The workshop organizers will present how the BDP tool can be used hand in hand with AI and courses can be automatically scaffolded in an open LMS. Time will also be ensured for discussion of all participants, leading to open research questions and challenges, as well as presentation of other relevant tools supporting AI-enhanced LD.

4 HANDS-ON COLLABORATION ON LEARNING DESIGN

Ahead of the workshop, participants will be asked to consider their courses and particular LO(s) which could be redesigned at the workshop and which are suitable for AI-related teaching and learning activities. At the workshop, participants will work collaboratively, grouped based on their own preferences and the similarity of courses/LOs they would like to work on.

The groups will be invited to design their courses and LOs using the BDP tool, with assistance provided by an AI chatbot. If applicable, the participants will scaffold their LDs automatically in the Moodle LMS. We also welcome contributions who want to use a different LD/AI/LMS tool as we are keen to learn from the diverse practices within the LA community.

Participants will work on the detailed planning of TLAs, assessment, feedback, modes of delivery, etc. In the process, they will consult the analyses provided by the tool, as well as suggestions provided by an AI chatbot, in order to make immediate adjustments to their LDs, aligning them with the LOs and the planned pedagogical approaches. The hands-on part of the workshop will take approximately 1 hour and each group will be supported by one of the organizers. After the collaborative part, in the plenary session, groups will be invited to share their LDs and mutually discuss their outputs.

5 FUTURE STEPS AND CONCLUSIONS

Finally, the participants will be asked to take part in the evaluation of the concept and the workshop, prepared in line with the approved research protocol (ethically approved by one of the workshop organizers' universities). The conclusions of the workshop will be shared with the participants after the workshop. There will be a possibility to establish further collaboration to work on a project and/or a publication. All participants will be able to continue using the BDP tool, as well as share it with their colleagues, free of charge.

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