FAIR Workshop on Learning Analytics

Lecturers: JProf. Ioana Jivet (Fernuniversität Hagen), JProf. Maren Scheffel (Ruhr-Universität Bochum), Dr. Jan Delcker (Universität Mannheim), Joana Heil (Universität Mannheim), Yvonne Hemmler (Universität Mannheim)

Organizers: Dr. Jakob Schwerter, Prof. Dr. Philipp Doebler, Dr. Elisabeth Graf und Dr. Thomas Brüggemann

Program Overview

Dates and Time:
September 25, 2024, 09:00 - 17:00 CET
September 26, 2024, 09:00 - 17:00 CET
September 27, 2024, 09:00 - 17:00 CET

In this two-part workshop, participants will be introduced to learning analytics (part 1) and researcher will present current research on learning analytics and related fields to initiate collaborations (part 2).

Part 1) Introduction to Learning Analytics

- Wednesday: JProf. Ioana Jivet & JProf Maren Scheffel on "Effective Dashboard Design and Data Visualisation for Learning Analytics" (Workshop 1.1-1.4)
- Thursday until noon: Dr. Jan Delcker, Joana Heil and Yvonne Hemmler on "Introduction to Learning Analytics: Data-driven support of educational processes" (Workshop 2.1-2.3)

Part 2) Networking in Learning Analytics

- Thursday from noon to Friday noon: Presentations by researchers on the topic of learning analytics, digital learning environment, etc.
- Friday from noon to evening: Breakout sessions to initiate collaborations and short presentations of ideas.
- If you only registered for part 1, you are free to stay for part 2 also

Time	Wednesday, 25.9.2024	Thursday, 26.9.2024	Friday, 27.9.2024
09.00 – 10.30	Workshop 1.1	Workshop 2.1	Presentations B
10.30 – 11.00	Coffee break		
11.00 – 12.30	Workshop 1.2	Workshop 2.2	Presentations C
12.30 – 13.30	Lunch break		
13.30 – 14.30	Workshop 1.3	Workshop 2.3	Exchange
14.30 – 15.00		Coffee break	
15.00 – 15.30	Coffee break	Presentations A	Coffee break
15.30 – 17-00	Workshop 1.4		Exchange

You can find detailed information on the workshops and titles of, as well as guidelines for presentations, below.

Lunch and Dinner

During the sessions we will provide drinks (coffee and tea) and small snacks. For lunch, there is the possibility to go to one of the nearby Mensa (see list below). Note that we cannot cover the costs fort he lunch and dinner.

Hauptmensa
Vogelpothsweg 85
44227 Dortmund

Food fakultät
Vogelpothsweg 74
44227 Dortmund

Galeria
Vogelpothsweg 85
44227 Dortmund

We additionally plan a dinner at a nearby restaurant for Wednesday (together with JProf. Ioana Jivet and JProf Maren Scheffel) and Thursday (together with Dr. Jan Delcker, Joana Heil and Yvonne Hemmler). If you would like to join, please contact us via workshop.fair@tu-dortmund.de until September 20 to be able to make a reservation.
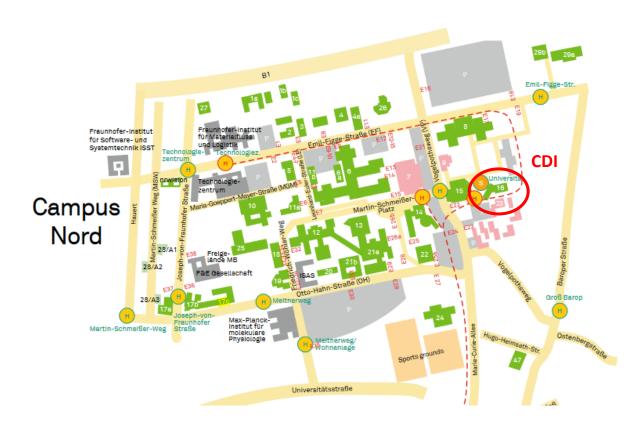
Location

The workshop will take place in the CDI building, Vogelpothsweg 78, on the North Campus of TU Dortmund University in the lecture room 022.

The North Campus is very easy to reach by public transportation as well as by car. The CDI building is located next to the Dortmund University S-Bahn station on the North Campus. There are plenty of parking spaces in the immediate vicinity of the CDI building.

Wifi-Information and folder for workshop material

On the whole campus, eduroam is available. You can access the workshop and upload your slides on our sciebo folder: https://tu-dortmund.sciebo.de/s/Mi1Hcx7PCjSl8kZ (key: fair2024)

Miscelleneous

We willl take photos for our website during the workshop. If you would not like to appear of any of the photos, please inform us in advance.

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Detailed Program

Part 1, Workshop 1: Effective dashboard design and data visualisation for LA

Description
Using visualisations for communication purposes is very common. In the educational field, individual visualisations or even whole dashboards are often used to show the results of data analysis in an easily digestible form, e.g. to learners or teachers. Often, however, what was intended to be communicated by a visualisation and how it is then interpreted by people differs. Similarly, dashboards are often built without a clear purpose or reason, but simply because the data is available. In this workshop, we will look at principles and guidelines of data visualisation and work on a structured approach to the why, what and how of effective dashboard design for learning analytics. Participants will be introduced to guidelines of dashboard design, will analyse and interpret examples of LA dashboards, and will design their own dashboard mockups.

Activities
Participants will be introduced to the world of data visualisation and will get to see dashboard examples from the field of LA as well as other fields. Based on the analysis of examples and mock-ups, principles and guidelines will be formulated on how to design effective LA dashboards. In small groups, participants will then design a learning analytics dashboard for a given learning context: they will first explore educational problems (i.e. what problem do they want to solve with a dashboard, how can it be grounded in theory and practice) and then identify relevant information and data to work on the problem. Based on this, participants will draft dashboard mock-ups using the principles. Finally, they will prioritise design features and sketch evaluation criteria and plans.

Target Audience
Anyone interested in the visualisation of learning data and the design of learning analytics dashboards, anyone from students to teachers to practitioners to educational institution managers. An understanding of what learning analytics is, how and where it can be used and who its stakeholders are is beneficial.

Takeaways
Learning the process of designing dashboards in educational contexts
Understanding of principles and guidelines for dashboard design and data visualisation
Getting a glimpse into the art of storytelling with data
Understanding the importance of grounding dashboard designs in theory and practice

Jun.-Prof. Dr. Maren Scheffel is a Junior Professor of Educational Data Science at the Institute of Educational Science at Ruhr-Universität Bochum (RUB). She holds a background in computational linguistics. Prof. Dr. Scheffel spent five years at the Fraunhofer Institute for Applied Information Technology (FIT), focusing on technology-supported and personalized learning. In 2014, she moved to the Netherlands and completed her PhD in Learning Analytics at the Open Universiteit in 2017. After serving as an Assistant Professor there, she joined RUB on October 1, 2020.

Jun.-Prof. Dr. Ioana Jivet is a Research Professor at the Center for Advanced Technology for Assisted Learning and Predictive Analytics (CATALPA) at FernUniversität in Hagen. She specializes in the design and implementation of student-facing learning analytics feedback systems, integrating insights from computer and data science, artificial intelligence, learning sciences, and human-computer interaction.

Part 1, Workshop 2: Introduction to Learning Analytics: Data-driven support of educational processes

Description

Learning analytics refers to data mining, analysis and intervention practices that support educational processes individually and systematically. The aim is to analyze and visualize relevant educational data in near real time in order to model and support teaching and learning processes and learning environments.

The workshop will introduce the field of research and present selected scientific results as well as open implementation and research questions. It will be shown which educational data can be relevant, how it can be analyzed and what possibilities for interpretation and intervention arise for teachers. Space will be created for the diverse teaching experiences and challenges of the participants in order to stimulate an open discussion that also addresses questions of ethics and data protection. In the second part, participants will have the opportunity to gain practical experience with learning analytics themselves. LeAP (Learning Analytics Profiles; www.bwl.uni-mannheim.de/ifenthaler/leap/) will be presented. LeAP aims to provide a holistic and sustainable learning analytics solution for existing learning management systems.

Dr. Jan Delcker has been working as a research assistant at the Chair of Technology-Based Instructional Design since October 2015. In 2022, he received his doctorate for his thesis on "Transforming Vocational Schools – Digitalization in School Development". His research interests are in teaching and learning with digital technologies, educational data literacy and data-driven school development.

Joana Heil has been a research assistant at the Chair of Business Education – Learning, Design & Technology since September 2021. Her main interests are in learning analytics, adaptive learning and e-assessments.

Yvonne Hemmler has been working as a research assistant at the Chair of Business Education – Technology-Based Instructional Design since April 2021. Her research interests are in the areas of workplace learning, digital learning platforms, artificial intelligence and learning analytics.

Part 2: Presentations and Exchange

Networking of scientists through presentations of current research work as well as break-out sessions. The aim is to initiate collaborations and position papers on the topic of learning analytics. The presentations are grouped in three blocks (Session A – C, see below). For each person we planned **25 minutes for the presentation plus discussion**. Please reserve at least 5 minutes for questions and the discussion, other than that you can chose freely how much time you need for your presentation.

Session A: Learning Analytics in Higher Education

- Current Trends in Analytics-Based Feedback (Jan Delcker)
- Retrieval Practice in Higher Education (Jakob Schwerter)
- Investigating motivational and emotional processes using online learning platforms (Elisabeth Graf)
- Using learning analytics to analyze learning behavior, improve self-study units and promote academic success - an evaluation as part of beVinuS.nrw (Carolin Horsthemke)

Session B: Machine Learning and Learning Analytics

- Can we trust Large Language Models as tutors for our students? GPT Feedback on Statistics Exams (Markus Herklotz)
- Modeling learning processes as a basis for automatic instructional assignments using big student data in maths and reading (Nikola Ebenbeck)
- Using Multivariate Random Forests for Predicting Learning Trajectories From Digital Training Data (Susanne Frick)

Session C: Learning Analytics at School

- Supporting student success with data (Ioana Jivet)
- Learning progress assessment with quop (Natalie Förster)
- Language Exercises for the Classroom (Mourhaf Kazzaz)