L2D 2021
First International Workshop on Enabling Data-Driven Decisions from Learning on the Web
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Preface

The First International Workshop on Enabling Data-Driven Decisions from Learning on the Web (L2D 2021) was held as part of the 14th ACM International Conference on Web Search and Data Mining (WSDM 2021) on March 12, 2021. L2D 2021 was expected to happen in Jerusalem, Israel, but due to the COVID-19 emergency and the consequent travel restrictions, the workshop was held online. The workshop was jointly organized by the FIZ Karlsruhe – Leibniz Institute for Information Infrastructure & Karlsruhe Institute of Technology (Germany), by the École Polytechnique Fédérale de Lausanne - EPFL (Switzerland), and by the University of Craiova (Romania).

The workshop collected novel, original research on the state of the art of online education empowered with data mining and machine learning, providing a common ground for researchers, practitioners, and stakeholders working in this area. The workshop day included six paper presentations, a keynote talk, and a panel discussion to highlight open issues, research challenges, future research directions, and briefly summarise the outcomes of the workshop. More than 50 participants were registered and participated in the workshop.

In total, 11 submissions from different countries were received. The final program included 3 full papers and 3 short papers (acceptance rate 54%). All submissions were single-blind peer-reviewed by at least three internal Program Committee members on the basis of relevance for the workshop, novelty/originality, significance, technical quality and correctness, quality and clarity of presentation, quality of references and reproducibility, to ensure that only submissions of high quality were included in the workshop program. Full paper authors were given 15 minutes to present their work, with 5 minutes for questions and answers. Conversely, short paper authors used 12 minutes to present and 3 minutes were left for questions and answers. The presentations covered topics that go from the integration of context information for knowledge tracing, over analyses to identify learning patterns in students’ teams working on business cases and in students experiencing synchronous online learning, to studies that provide evidence on learning testing models through mobile applications, as examples.

In addition to the paper presentations, the program included a 45-min keynote talk given by Prof. Marcus Specht from the Technical University of Delft (TU Delft), The Netherlands. Prof. Specht introduced the characteristics of the context where digital education is taking place, highlighting a range of important challenges and possible solutions to them at each point of the educational pipeline. In particular, the role of continuous feedback among stakeholders (e.g., researchers, students, teachers) at each stage of the design and delivering process was emphasized as a key aspect of formative assessment and as one of the most important influences in learning and teaching digitally.

Furthermore, the workshop included a 40-min panel with four representatives from top-tier education companies, engaged in a discussion moderated by the
workshop organizers. This panel aimed to strengthen the connection between the academic and the industrial data mining and machine learning communities working in education, which have plenty to teach to each other, developing synergies between the two. The list of panelists included Brian Aronson from The Adecco Group, Beata Beigman Klebanov from Educational Testing Service (ETS), Marianne Sorba from Coursera, and Junyoung Park from Riiid!.

The panel discussed what it means to build, deploy, and do research on top of large-scale online educational platforms in our era, how data mining and machine learning can support in understanding learners’ behavior at large scale, how intelligent models can provide data-driven decisions tailored to the stakeholders’ needs in modern online platforms, and which challenges are faced and how academia and industry can collaborate to address them. Finding answers to these questions is crucial to ensure the systems we develop improve the online education ecosystem and, with this panel, we brought a variety of perspectives from industry to discuss these questions and foster synergies in this vibrant area.

Overall, the workshop was a successful event, as shown by the level of participation and the quality of the contributions during the presentations and the panel discussion. We believe that this workshop strengthened the community working on data mining and machine learning in education, promoting discussions on ideas and solutions for the current challenges, favouring the creation of networks of researchers for future initiatives. Plans to organize the second edition of the workshop were formed. The organizers would like to sincerely thank the main conference organizers, the keynote and panel speakers, the paper authors, the programme committee, and the attendees for their valuable contribution to make this workshop a success.

May 2021

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Organization

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Chairs and program committee members are in alphabetical order by lastname.
# Table of Contents

Incorporating Wide Context Information for Deep Knowledge Tracing using Attentional Bi-interaction ........................................ 1  
*Raghava Krishnan, Janmajay Singh, Masahiro Sato, Qian Zhang and Tomoko Ohkuma*

Collaboration Patterns in Students’ Teams Working on Business Cases 14  
*Galena Pisoni, Hannie Gijlers, Hsin-Chueh Chen and Thu Ha Nguyen*

Modelling Student Behavior in Synchronous Online Learning during the COVID-19 Pandemic .................................................... 28  
*Gianni Fenu and Roberta Galici*

Learning Testing Model using Test Generators and Mobile Applications 41  
*Doru Anastasiu Popescu, Cosmin Iulian Gosoiu and Daniel Nijloveanu*

Test Students’ Attention in Class using a Mobile Application ............ 49  
*Doru Anastasiu Popescu, Cosmin Iulian Gosoiu and Ion Alexandru Popescu*

Designing Intelligent Systems for Online Education: Open Challenges and Future Directions .......................................................... 57  
*Danilo Dessì, Tanja Käser, Mirko Marras, Elvira Popescu and Harald Sack*