BOOK REVIEW

ADOPTION OF DATA ANALYTICS IN HIGHER EDUCATION LEARNING AND TEACHING
Edited by Dirk IFENTHALER and David GIBSON

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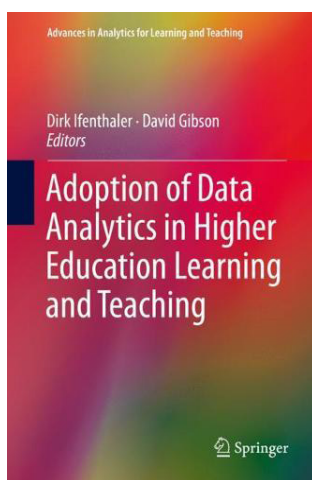
Adoption of Data Analytics in Higher Education Learning and Teaching is edited by Dirk Ifenthaler and David Gibson. This book was published by Springer in 2020 and also this book has 464 pages. The meta data of the book is as followings: ISBN: 978-3-030-47391-4; ISBN: 978-3-030-47392-1; DOI: 10.1007/978-3-030-47392-1

The book consists of 21 chapters in three parts. These parts and chapters are:

Part I: Focusing the Organisation in the Adoption Process: Chapters 1-7

Part II: Focusing the Learner and Teacher in the Adoption Process: Chapters 8-14

Part III: Cases of Learning Analytics Adoption: Chapters 15-21

INTRODUCTION

Data science is a very important factor in the development of educational environments and in institutions, especially in higher education, to make sustainable studies. Higher education institutions can benefit from educational data mining and learning analytics by adopting different data analytics strategies to improve recommendations for the future of the institutions. From a perspective supporting the issue, this book "Adoption of Data Analytics in Higher Education Learning and Teaching" edited by Dirk Ifenthaler and David Gibson presents valuable insights and contributions to higher education institutions regarding the adoption of learning analytics and educational data mining. This book also examines case studies that describe current practices and experiences about the use of data analytics in higher education.

REVIEW OF THE BOOK

The structure of the book divided into three parts consisted of 21 chapters. Part I: Focusing the Organization in the Adoption Process, Part II: Focusing the Learner and Teacher in the Adoption Process, and Part III: Cases of Learning Analytics Adoption.

Part I: Focusing the Organization in the Adoption Process

The first part of the book offers seven chapters about the process of learning analytics adoption, politics of learning analytics, various frameworks and perspectives on the implementation of learning analytics.

Chapter 1: *Adoption of Learning Analytics* authored by David Gibson and Dirk Ifenthaler identifies Innovation Diffusion as the theoretical perspective on the adoption of learning analytics and focuses on the new adoption models and frameworks which are necessary for the integration of learning analytics systems into higher education institutions.

Chapter 2: *The Politics of Learning Analytics* by Reem Al-Mahmood examines promises and challenges of adoption learning analytics and big data in higher education institutions and also provides insights into how higher education institutions interpret the process of adoption of algorithmic and datafied education.

Chapter 3: *A Framework to Support Interdisciplinary Engagement with Learning Analytics* by Stephanie J. Blackmon and Robert L. Moore focuses on how learning analytics has an effect to accelerate interdisciplinary approach for student engagement and support.

Chapter 4: *The Framework of Learning Analytics for Prevention, Intervention, and Postvention in E-Learning Environments* authored by Muhittin Sahin and Halil Yurdugul points out theoretical concepts of prevention, intervention and postvention considering their contribution to learning analytics. By reviewing the studies about this context, this study presents a proposed framework based on learning analytics, prevention, intervention and postvention studies.

Chapter 5: *The LAVA Model: Learning Analytics Meets Visual Analytics* authored by Mohamed Amine Chatti, Arham Muslim, Manpriya Guliani, and Mouadh Guesmi introduces a model named Learning Analytics and Visual Analytics (LAVA). Thanks to the LAVA model, learning analytics data was collected from different sources and the model was evaluated in terms of model, usefulness and usability.

Chapter 6: *See You at the Intersection: Bringing Together Different Approaches to Uncover Deeper Analytics Insights* by David Paul Fulcher, Margaret Wallace, and Maarten de Laat explores out an adoption of learning analytics process through six years and current practices of an Australian University in order to advance on implementing institutional approaches to learning analytics.

Chapter 7: *"Trust the Process!": Implementing Learning Analytics in Higher Education Institutions* by Armin Egetenmeier and Miriam Hommel analyzes the implementation process of learning analytics in terms of current issues, challenges and new approaches and models at Aelen University of Applied Science.

Part II: Focusing the Learner and Teacher in the Adoption Process

The second part of the book includes seven chapters highlighting roles of learners and teachers throughout the adoption process of learning analytics.

Chapter 8: *Students' Adoption of Learner Analytics* by Carly Palmer Foster investigates how the learners' predispositions change according to data and analytics and also analyzes the factors affecting the adoption process of extracted learner analytics named "Connect Analytics" at Northumbria University in the United Kingdom.

Chapter 9: *Learning Analytics and the Measurement of Learning Engagement* authored by Dirk Tempelaar, Quan Nguyen, and Bart Rienties intends to ensure 'multi-modal data'-based contribution to the research of student engagement in learning by highlighting both quantitative and qualitative aspects of engagement.

Chapter 10: *Stakeholder Perspectives (Staff and Students) on Institution-Wide Use of Learning Analytics to Improve Learning and Teaching Outcomes* by Ann Luzeckyj, Deborah S. West, Bill K. Searle, Daniel P. Toohey,

Jessica J. Vanderlelie, and Kevin R. Bell centers upon three different studies undertaken with university staff and students concerning the use of learning analytics to make more efficient and structured learning and teaching experiences.

Chapter 11: *How and Why Faculty Adopt Learning Analytics* authored by Natasha Arthars and Danny Y.-T. Liu studies on the analysis of empirical evidence based on teachers' perceptions and needs regarding adoption and diffusion of learning analytics platform (Student Relationship Engagement System) across an Australian University.

Chapter 12: *Supporting Faculty Adoption of Learning Analytics within the Complex World of Higher Education* by George Rehrey, Marco Molinaro, Dennis Groth, Linda Shepard, Caroline Bennett, Warren Code, Amberly Reynolds, Vicki Squires and Doug Ward focuses on the design to learn about a multi-case study designed on learning analytics in higher education.

Chapter 13: *It's All About the Intervention: Reflections on Building Staff Capacity for Using Learning Analytics to Support Student Success* by Ed Foster, Rebecca Siddle, Pete Crowson and Pieterjan Bonne identifies the challenges of building staff abilities using data from learning analytics.

Chapter 14: *Experiences in Scaling Up Learning Analytics in Blended Learning Scenarios* by Vlatko Lukarov and Ulrik Schroeder underlines the problems of scaling up learning analytics in blended learning scenarios in a higher education institution in Germany.

Part III: Cases of Learning Analytics Adoption

The third part of the book contains seven chapters concerning current practices and studies of learning analytics adoption.

Chapter 15: *Building Confidence in Learning Analytics Solutions: Two Complementary Pilot Studies* by Armelle Brun, Benjamin Gras and Agathe Merceron investigates two studies designed to point out students' dropout reasons affecting student success at two higher education institutions in Germany and France.

Chapter 16: *Leadership and Maturity: How Do They Affect Learning Analytics Adoption in Latin America?* by Isabel Hilliger, Mar Pérez-Sanagustín, Ronald Pérez-Álvarez, Valeria Henríquez, Julio Guerra, Miguel Ángel Zuñiga-Prieto, Margarita Ortiz-Rojas, Yi-Shan Tsai, Dragan Gasevic, Pedro J. Muñoz-Merino, Tom Broos and Tinne De Laet highlights the studies carried out on learning analytics in Latin America and explains what is required to increase the adoption of learning analytics in the region.

Chapter 17: *Adoption of Bring-Your-Own-Device Examinations and Data Analytics* by Robyn Fitzharris and Simon Kent sheds light on a case study of successful implementation of digital examination providing data analysis not only at the end of the process, but also on the production process. The bring-your-own-device (BYOD) examination concept is about a locked-down browser environment installed on students' own laptops which prevents access to online sources with certain restrictions.

Chapter 18: *Experiential Learning in Labs and Multimodal Learning Analytics* by Anke Pfeiffer, Vlatko Lukarov, Giovanni Romagnoli, Dieter Uckelmann and Ulrik Schroeder focuses on the learning analytics in laboratory-based learning environments.

Chapter 19: *Web Analytics as Extension for a Learning Analytics Dashboard of a Massive Open Online Platform* by Philipp Leitner, Karin Maier and Martin Ebner illustrates features and functions of learning analytics dashboards to improve the learning process in massive open online courses (MOOCs).

Chapter 20: *A Dimensionality Reduction Method for Time Series Analysis of Student Behavior to Predict Dropout in Massive Open Online Courses* by Eric G. Poitras, Reza Feyzi Behnagh and Francois Bouchet sorts out the results of existing machine learning techniques and several preprocessing techniques with the purpose of modeling attrition in MOOCs.

Chapter 21: *Evidence-Based Learning Design Through Learning Analytics* by Esin Caglayan, O. Osman Demirbas, Ali Burak Ozkaya and Mehmet Sahin clarifies the similarities between instructors' opinion on their course design archetype and the archetype provided by Blackboard Analytics.

CONCLUSION

Data analytics is seen as an essential element to improve higher education learning and teaching environments as a reflection of learning analytics and educational data mining technologies. This book presents critical perspectives and essential frameworks and methods on the adoption process of learning analytics by providing case studies, current practices and experiences and innovative approaches. In this regard, Adoption of Data Analytics in Higher Education Learning and Teaching is a valuable reference for higher education staff, administrators, educators, practitioners, academicians, curriculum developers, instructional designers, policymakers, and researchers who want to learn more about the adoption of learning analytics in higher education institutions.

BIODATA and CONTACT ADDRESSES of AUTHORS

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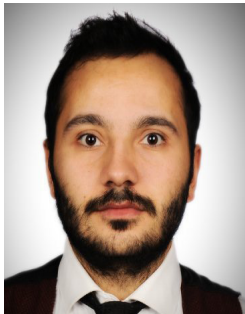
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REFERENCES

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