

DesignLAK18: Evaluating systems and tools that link learning analytics and learning design

Linda Corrin

University of Melbourne
lcorrin@unimelb.edu.au

Nancy Law

University of Hong Kong
nlaw@hku.hk

Ulla Ringved

University College Northern
Denmark
ulr@ucn.dk

Sandra Milligan

University of Melbourne
s.milligan@unimelb.edu.au

ABSTRACT: The 3rd DesignLAK workshop focuses on evaluation of the frameworks, systems and tools that bring together learning design and learning analytics. The purpose of the proposed workshop is to bring together members of the learning analytics community to share their experiences of developing and researching frameworks, systems and tools that link these two fields together. This hands-on workshop will give participants a chance to use and explore a range of systems and tools that link learning analytics with learning design, applying use case scenarios to evaluate the strengths and weakness of the systems. Throughout the day an ongoing conversation will be held to identify opportunities and challenges in moving the field forward. The outcomes of the workshop will include evaluative feedback for system/tool developers as well as a discussion paper summarising the key insights that emerge from the workshop.

Keywords: Learning design, learning analytics, evaluation

1 BACKGROUND

This workshop focuses on evaluating the frameworks, systems and tools in the learning design and learning analytics communities that seek to bring these two fields together. The connection between learning analytics and learning design has been recognised as fundamental in enabling understanding and translation of the outcomes of analytics processes so they can be applied to support student learning. Learning design involves both the process of designing sequences of learning activities for students as well as the description of these learning activities for teachers' use (Bennett, Agostinho & Lockyer, 2017). The creation of a learning design enables a teacher and/or learning designer to articulate the pedagogical intent of the learning activities in sharable ways (Lockyer, Heathcote & Dawson, 2013).

When combined with learning analytics, learning design has the potential to “provide a semantic structure for analytics” (Mor, Ferguson & Wasson, 2015) helping teachers to link analytics outcomes with the pedagogy and design that underpinned the learning activity. Many opportunities are opened up by this connection including the ability for teachers to intervene in real-time to provide student support, the ability to make learning outcomes visible to teachers and students, and to provide evidence on which to base learning design decisions (Schmitz et al., 2017). A core challenge also exists in finding a common

vocabulary that teachers and learning designers can use to represent their learning designs in order that they can be shared with others (Law et al., forthcoming).

Over recent years several frameworks that connect learning analytics and learning design have emerged (e.g. Bakharia et al., 2016; Donald et al., 2016; Schmitz et al., 2017). Each of these frameworks proposes ways that learning design can be integrated with the process or cycle of learning analytics to provide insight to stakeholders (e.g. teachers, students, administrators, etc.). Implicit in each of these models is the role of the teacher in translating the analysis into action. Yet, these frameworks all operate at a broad level and do not attempt to dictate a particular representation for learning designs or vocabulary through which they can be described. Consequently, while acknowledgement of the importance of the role of learning design in learning analytics has been established, there is still work to be done to operationalise this in meaningful and actionable ways for stakeholders.

Within the learning analytics community there have been several projects that have developed systems and tools to connect learning analytics with learning design (for example, Corrin et al., 2016; Law et al., forthcoming; Persico & Pozzi, 2015). There has also been research that has used learning analytics to explore the relationship between learning design and academic outcomes such as student satisfaction and performance (e.g. Rienties & Toeteneel, 2016). All these endeavors demonstrate the potential offered by combining learning analytics and learning design in ways that can help improve learning environments. The purpose of the proposed workshop is to bring together members of the learning analytics community to share their experiences of developing and researching frameworks, systems and tools that link learning analytics with learning design. This workshop continues the conversation begun in previous DesignLAK workshops which have focused on stocktaking emergent theory and practice of learning design and feedback processes (Milligan et al., 2016) and quality metrics and indicators for analytics of assessment design (Ringtved et al., 2017).

2 PURPOSE OF THE WORKSHOP

The main objective of this workshop is to share and evaluate a range of systems and tools that link learning analytics with learning design in order to provide feedback to developers and identify new insights for future development in the area. The workshop will be very interactive in nature with participants having a chance to use and explore these systems and tools in order to provide feedback and engage in discussions about what we can learn from such developments. Developers of learning analytics/learning design systems and tools will be given the opportunity to submit proposals for their work to be included and reviewed as part of the workshop and can benefit from the feedback provided by fellow participants on their work. Submissions on use case scenarios are also invited as test cases for the submitted systems and tools. The aim is to create a constructive conversation about the ways learning analytics and learning design can be connected through the consideration of current initiatives also helping to identify opportunities and challenges in moving this area forward.

3 WORKSHOP DESIGN

The full-day workshop is expected to attract approximately 30-40 participants and will be open to anyone with an interest in learning analytics and learning design (e.g. teachers, learning designers, researchers, developers, etc.).

3.1 Pre-workshop planning

A website will be established to promote the workshop including information on the purpose and structure of the workshop. This website will also be used to disseminate the outcomes of the workshop as a record for interested members of the learning analytics/learning design community. A call for participation will be released on the 30th October via the website, through various social media channels (e.g. Twitter), and through mailing lists of relevant professional organisations (e.g. SoLAR, Australasian Society for Computers in Tertiary Education (ASCILITE), Association for Learning Technology, etc.). Those individuals/teams who would like their system/tool to be workshopped will be asked to prepare a test system proposal of not more than 1500 words outlining the purpose of the system/tool, the learning design framework that informs it, the design principles of the system/tool, and any aspects on which they would like to receive specific feedback. Individuals/teams who are interested in submitting a use case scenario are invited to submit a scenario description of not more than 800 words on the learning setting that requires the use of a system to support learning design and learning analytics, and a list of performance criteria that can be used to evaluate the system. These proposals will be reviewed by the workshop organisers and 4-5 systems/tools will be selected to be workshopped on the day, together with 3-4 use case scenarios.

3.2 The WORKshop

Requirements for the workshop space include a computer and projector, as well as tables that can be moved to form small groups for the evaluation activities. All participants will be asked to bring along a laptop computer in order to access the systems/tools and Wi-Fi will be required to allow participants to connect to these systems/tools.

The workshop will begin with an overview of the field and current frameworks provided by the workshop organisers. This will set the scene for the conversation that will continue throughout the day around insights for future development and research of the intersection between learning analytics and learning design. It will be made clear to participants that the spirit of this discussion and the evaluation of the systems/tools is to be constructive, not critical.

Following this introduction a review of each of the systems/tools will be undertaken. Presenters will be given 10 minutes to introduce their system/tool and highlight any specific aspects for which they seek feedback. The presenters will be asked to provide an online demonstration environment for the system/tool that workshop participants can then access and explore. Working in small groups, participants will be given an evaluation framework and the use case scenarios that they can use to guide their exploration and consideration of each system/tool. The system/tool development team will be

encouraged to circulate the room during this time to help answer any questions groups may have as they explore. At the end of each case scenario a short whole-group discussion will be held to identify key strengths and weaknesses of the system/tools and suggestions for future development. A summary of each groups' feedback will be added to a shared Google Doc that will be made available to all participants at the end of the day.

The workshop will end with a broader discussion facilitated by the workshop organisers of the issues around integrating learning analytics and learning design in light of the experiences participants have had throughout the day. This will allow all participants to learn from the strengths and weaknesses of the systems/tools reviewed, and in doing so, provide insights for useful ways forward.

3.3 Post-workshop dissemination

A summary of the outcomes of the workshop will be made available via the workshop website. Participants in the day will also maintain access to the Google Doc containing the evaluation summaries for each system/tool reviewed. The broader discussion outcomes of the workshop will also form the basis of a discussion paper to be written by the workshop organisers.

REFERENCES

- Bakharia, A., Corrin, L., de Barba, P., Kennedy, G., Gasevic, D., Mulder, R., Williams, D., Dawson, S., Lockyer, L. (2016). A conceptual framework linking learning design with learning analytics. In T. Reiners, B.R. von Kinsky, D. Gibson, V. Chang, L. Irving, & K. Clarke (Eds.), *Proceedings of the 6th International Conference on Learning Analytics and Knowledge* (pp. 409-413). New York: ACM.
- Bennett, S., Agostinho, S., & Lockyer, L. (2017). The process of designing for learning: understanding university teachers' design work. *Educational Technology Research and Development*, 65(1), 125-145.
- Corrin, L., Kennedy, G., de Barba, P., Lockyer, L., Gasevic, D., Williams, D., Dawson, S., Mulder, R., Copeland, S., & Bakharia, A. (2016). *Completing the Loop: Returning Meaningful Learning Analytics Data to Teachers*. Sydney: Office for Learning and Teaching.
- Donald, C., Gunn, C., McDonald, J., Blumenstein, M., & Milne, J. (2016). Matching the rhythms of teaching to learning analytics. Paper presented at the *International Consortium of Educational Developers*, University of Cape Town.
- Law, N., Li, L., Herrera, L. F., Chan, A., & Pong, T. (forthcoming). A Pattern Language Based Learning Design Studio for an Analytics Informed Inter-Processional Design Community. *Interaction Design and architecture(s)*.
- Lockyer, L., Heathcote, E., & Dawson, S. (2013). Informing pedagogical action: Aligning learning analytics with learning design. *American Behavioral Scientist*, 57(10), 1439-1459.
- Milligan, S., Ringtved, U. & Corrin, L. (2016). Learning design and feedback processes at scale: Stocktaking emergent theory and practice. *6th International Conference on Learning Analytics and Knowledge*, University of Edinburgh.
- Mor, Y., Ferguson, R., & Wasson, B. (2015). Learning design, teacher inquiry into student learning and learning analytics: A call for action. *British Journal of Educational Technology*, 46(2), 221-229.

- Persico, D., & Pozzi, F. (2015). Informing learning design with learning analytics to improve teacher inquiry. *British Journal of Educational Technology*, 46(2), 230-248.
- Rienties, B., Toetenel, L. (2016). The impact of learning design on student behaviour, satisfaction and performance: a cross-institutional comparison across 151 modules. *Computers in Human Behavior*, (60). 333-341.
- Ringtved, U., Milligan, S., & Corrin, L., Littlejohn, A., & Law, N. (2017). DesignLAK17: Quality metrics and indicators for analytics of assessment design at scale. *7th International Conference on Learning Analytics and Knowledge*, Simon Fraser University, Vancouver.
- Schmitz, M., van Limbeek, E., Greller, W., Sloep, P., & Drachsler, H. (2017). Opportunities and Challenges in Using Learning Analytics in Learning Design. In *European Conference on Technology Enhanced Learning* (pp. 209-223). Springer, Cham.