Learning Analytics Hot Topic: Linking learning design and learning analytics

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Hernández-Leo et al (2017), considering the connection between learning design and learning analytics, identify that there are promising possibilities for mutual support. Learning design, they note, may act as a translation device (through what they call 'a domain vocabulary'). This facilitates the use of learning analytics to examine pedagogical approaches. Conversely, learning analytics has the potential to provide robust and rigorous examination of the effectiveness of particular learning design. However, linking the two disciplines is still in its infancy. A framework is required to connect the two disciplines, and several have been suggested. These include:

- Checkpoint analytics (Lockyer, Heathcote, & Dawson, 2013)/temporal analytics (Bakharia et al, 2016): instructors analyse learners' use of key learning material at specific times, allowing them to ascertain if students are accessing these resources and progressing through the course as designers have planned. This analysis might draw on metrics such as time of access, duration of access, and unique page views.
- Process analytics (Lockyer, Heathcote, & Dawson, 2013): analysing how learners behave during specific learning activities that form part of an overall learning design, for example using social analytics to determine the pattern of engagement in a discussion-based learning task.
- Tool-specific analytics (Bakharia et al, 2016): analysis of data relating to specific learning tools, such as scores and attempts at a quiz, or the number of posts in a forum.
- Cohort dynamics (Bakharia et al, 2016): tracking individual learners' access to specific parts of the course, allowing the tracking of individual student progress through a course and the potential to relate this to performance, such as individual quiz scores, identifying individuals' access of particular tools or activities.

- Comparative (Bakharia et al, 2016): comparing aspects of the course, including differences in student participation for different learning activities; comparing engagement over different time periods (comparing behaviour across cohorts).

The Learning Analytics - Learning Design (LA-LD) Framework, developed by Gunn et al (2017), is another tool that is designed to help teachers to consider what data they require from learning analytics at different points in the teaching cycle: it seeks to anchor learning analytics data in real-life teaching practice.
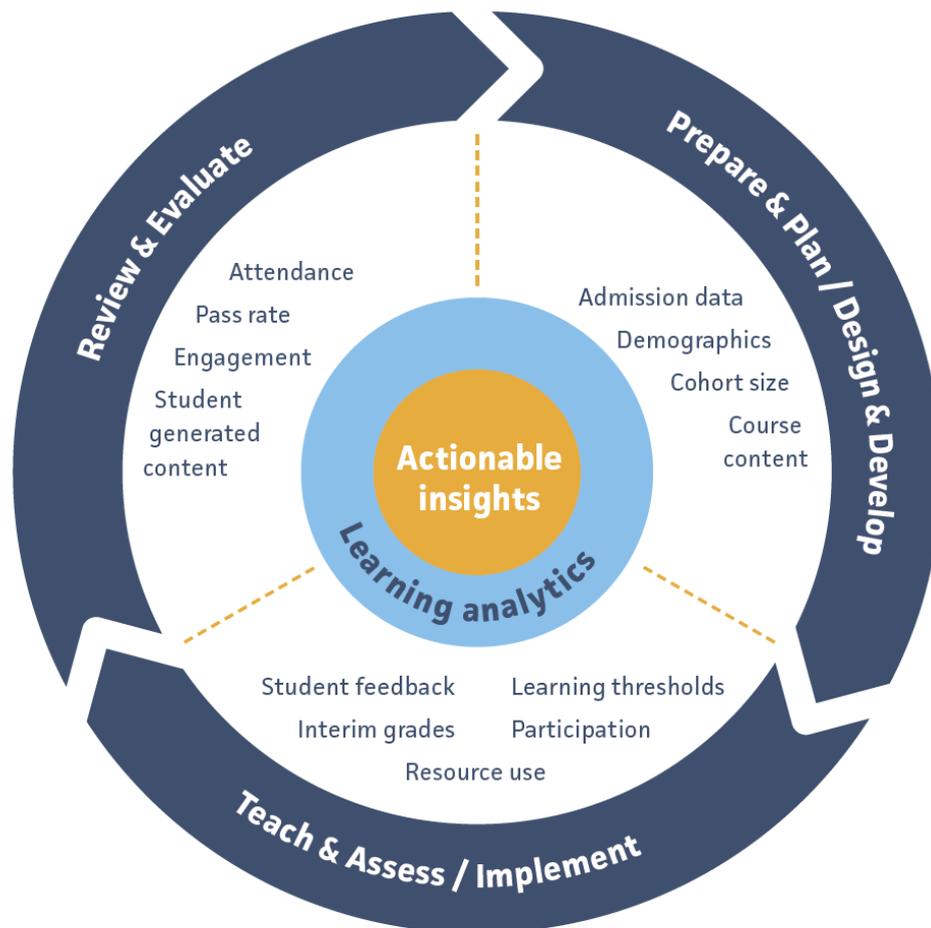

Figure 1: Learning Analytics-Learning Design Framework

These frameworks illustrate the possibilities of how learning analytics could contribute to the design of learning materials and courses. There are still questions that need to be addressed. How can we ensure that the link between what is being designed and the desired student behaviour is known, understood and accurate? Conversely, how do we know that the learning analytics data being used accurately measures that behaviour? These are questions that, among others, the field is considering - but the debate should also involve other stakeholders, including students.

References

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