



**An inside look at how
the University of South
Australia is using**

Learning Analytics to improve learning outcomes



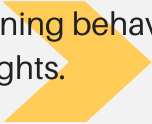


The past few years has seen learning analytics emerge as a key tool which many universities are leveraging to predict student behavior, with the end goal to improve overall student retention, enhance teaching and drive personalised learning.



And while it can be argued that the Australian Higher Education sector is still in the early-middle stages of realising the full potential learning analytics can provide, there are already many institutions that are using learning analytics not only to better understand student needs, but also to improve syllabus design and learning outcomes.

The University of South Australia is one such university who is leading in the field of learning analytics. Beginning their learning analytics journey with the roll-out of a suite of reports that capture students' online learning behavior, they have recently began to broaden the focus of learning analytics activities to provide better insights.



This involves a particular focus on understanding how context, and students' cognitive and affective processes, mediate student learning. To achieve this, the university has developed a multi-theoretical conceptual model of learning that it is using to inform data collection and analysis.

It is believed that the addition of affective, cognitive and contextual data to existing data sets will elicit deep, nuanced insights into student learning and engagement, and the various affordances and constraints of positive student outcomes.

Ahead of [Learning Analytics 2017](#), Higher Ed IQ caught up with Cassandra Colvin, Manager of Learning Analytics at the University of South Australia, to find out the core elements of the University's learning analytics program, the tools they are using to capture and understand student online learning behavior and the lessons learned from their journey so far.



APPROACHING ANALYTICS: THE CONCEPTUAL VERSUS OPERATIONAL PERSPECTIVE



“When reflecting on the University of South Australia’s learning analytics journey so far, we have approached learning analytics from both a conceptual and operational perspective.

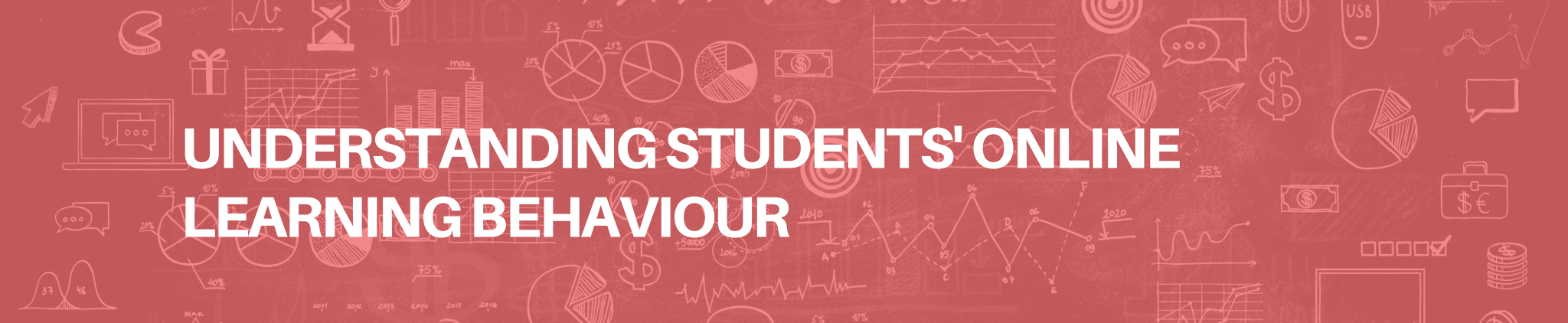
Conceptually, we identified: what is our vision? What are trying to achieve? What do we understand learning analytics to be, and, how should it work in our institution? These are important conversations to have to achieve an effective vision.

Our understanding of learning analytics is about the collection, the analysis and the auctioning of data about students learning. It’s about trying to elicit data to support evidence-based decision making from different levels within the organisation.

It is important to think about each of these levels. For example, at the micro level, what are the individual student or instructor needs and data requirements? But then also at the same time, what are the needs of senior management? This means we have to think about presenting data in very different formats. At the management level, it might be more aggregate and rolled-up data set as opposed to data for the individual instructor and student which would be very finely grained data.

This all informs how we think about designing our dashboards, our visualisations and our data-sets in a way that will provide individual versus aggregate and cohort data-sets that will allow for both formative and summative purposes.”





UNDERSTANDING STUDENTS' ONLINE LEARNING BEHAVIOUR

“At the University of South Australia we have a number of Learning Management Systems (LMS). We use Moodle, we have student record submissions and we are starting discussions with the library and student experience unit to bring in as much information as we can about student touch-points across the university.



A big focus is having more local data sources. For example, in the School of Education, there are particular learning dispositions and personal qualities they think are important mediators of their students. This involves elements such as how students are feeling, their levels of stress or how they identify as a professional. We’re soliciting this data through instruments that are embedded within the curriculum at key points. This is done very ethically and transparently and students can opt out of providing that information. But most seem to be taking part.

We’re also starting to think about how we can use other qualitative sources. A lot of the data traditionally comes from student touch-points. But we’re also thinking about video analytics and what we can get through assessment data. This also involves student feedback and looking at how students make sense of feedback, what they are doing with it and also student diaries and responses. We are doing this using technology called Natural Language Processing and it involves trying to automate and analyse text data at scale. This is a new space we are trying to get into.”



USING STUDENT INSIGHTS TO IMPROVE STUDENT ENGAGEMENT AND LEARNING

“We have dashboards which communicate to staff individual student engagement profiles – what students are doing and how they are engaging with learning materials and courses. At any point in time, a member of staff can access how students are engaging with their course and check if there are any concerning patterns of disengagement from students, so they can follow up.

We have also done a lot of analysis on large aggregate data-sets such as demographic data, academic data and student records, to get a sense of the different student cohorts we have and the key predictors of student engagement within different areas of the university.

For the past four years we have been using this data to discover certain factors that can indicate very early on, potential disengagement by students. Using this data, we have informed intervention programs. We ran one of these programs from 2013 to 2015, which involved identifying the students that were disengaged and contacting them. We found through time that the program generated an eight per cent improvement in retention and a 0.75 GPA increase.

Initially this intervention program was centrally run, but now it is available for all faculties to manage. We’re also in the process of rolling-out a new tool where staff will be given their own metrics on student engagement. For example, through machine learning or algorithms, staff will be able to see which students are vulnerable and then have the potential to put in their own indicators that are important to them. It’s all about extending traditional behavioural learning analytics elements to also include effective and cognitive elements so we can get a sense of the processes that shape student engagement.

We’re also piloting video data to see how students respond to material online and how they are constructing understanding. But we’re also looking at how they are engaging with each other. If we can get a sense of how students work together to construct knowledge, it will help us understand their behaviour.”



OVERCOMING THE CHALLENGE: GAINING STUDENT BUY-IN

“An example would be in the School of Education where we have rolled-out a number of learning analytics tools. Throughout this journey, we introduced to students the reason why we were collecting their data: which was to better understand learners within our programs so we can improve their experiences.

We also gave students assurances around their privacy and the information they were releasing. We had about 1,000 students get this statement and only three had queries.

We also ran focus groups through the student guild at the university. In these groups, we discussed the different types of learning analytics and different presentations of data and how students felt about it.

Students were actually very positive about it and could see its potential. However, we are yet to provide a student-facing dashboard - only because what can be helpful for some students, might actually be damaging for others. We are trying to work out ways we can personalise data to the data each student gets is meaningful and relevant to them.”





THE RESULTS: BRINGING TOGETHER MULTIPLE SHADES OF STUDENT SUCCESS



“Learning analytics is providing us real insights into our students and the different shades of their performance. The strength of learning analytics lies in its ability to bring together multiple shades of student success. It provides a sense of which elements shape study experience for different types of students.

Across the board we have been able to understand the different dimensions of learning and also find different patterns and divisions as well.”



INTERESTED IN LEARNING MORE?

Join Cassandra at [Learning Analytics 2017](#), where she will further explore:

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- What insights can learning analytics glean into cognitive and affective processes (eg self regulation, self efficacy, stress and well being), and relationships between these constructs and learning outcomes
 - Identifying indicators of change and marrying together drivers of learning analytics for quality assurance and evaluation
 - Understanding relationships between students’ sociocultural, academic and linguistic capital, affect, cognitions, and behaviour.

For more information visit <https://learning-analytics.iqpc.com.au> or call +61 2 9229 1000 or email enquire@iqpc.com.au

