



Forum Insights

Learning Analytics: Benefits for Institutions

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This *Forum Insight* stems from the National Forum project *Learning Analytics and Educational Data Mining for Learning Impact*, which runs from September 2016 to June 2017. The insight is intended for senior managers in higher education. It explains the principles of learning analytics and highlights some of the advantages for institutions. It also contains an overview of the key considerations of an effective learning analytics strategy.

What is Learning Analytics (LA)?

LA describes an evidence-based approach to decision-making in higher education. It is modelled on the principles of big data, data analytics and business intelligence which are now core aspects of business across many commercial sectors. Analytics empowers HEIs to capitalise on a rich, valuable and often under-utilised resource, namely their institutional data.

LA can be used to enhance the descriptive reporting which keeps stakeholders at every level informed of what's really happening. It can be used to predict future outcomes of actions and decisions based on modelled historical data. At its highest level, it can automatically prescribe actions which are most likely to achieve a desirable outcome or avoid an undesirable one.

What are the benefits for institutions?

- LA enables institutions to make informed decisions and take actions with a high likelihood of success by leveraging a resource which is already available and abundant.
- The use of early alert systems to support effective retention strategies can reduce student attrition and increase fee income by up to 22%.
- LA enables institutions to shine a light on where and how resources are most effective, thereby reducing investment, saving waste and increasing efficiency.
- Analytics can keep senior managers dynamically informed of developments across the campus and beyond, enabling iterative assessment of strategic and statutory KPIs.

Applications of Learning Analytics

- Early alert systems which help to improve student retention.
- Targeting resources to enhance the student experience.
- Assessment of research impact and identification of opportunities for development.
- KPI monitoring for statutory reporting and funding.
- Targeting resources to optimise international recruitment.
- Evidence-based strategic planning and resource allocation.
- Dynamic budgetary reporting at local and institutional levels.
- Informed curriculum planning and learning design.

Improving retention for Irish and international students

Currently, the earliest that most institutions can identify at-risk students in year one is with the ratification of semester one results in January/February. For students who have already failed some modules, this may be too late. LA enables the identification of such students up to four months earlier, enabling targeted, pro-active interventions which direct students to essential learning resources while there is still time for them to change their potential academic trajectory. This can be achieved by analysing data from a variety of sources including the student information system, virtual learning environment, library systems, etc. to predictively identify students who may be at risk of failing their end-of-semester assessments and/or withdrawing from their programme early.

HEIs are currently investing considerable resources in recruiting international students but non-retention rates persist. A 2010 HEA report lists non-retention rates among international students of up to 22% (HEA, 2010). LA enhances institutions' potential to not only find and recruit the best international students, but also to support and nurture them from application through to graduation.

Enhancing the student experience

LA also has many applications which can enrich students' learning, wellbeing and integration into campus life. It can enable personalised learning, by systematically identifying areas in a student's academic progress which require further engagement and automatically directing students to suitable resources.

Analytics can alert pastoral staff to students exhibiting sudden changes in engagement which may indicate behavioural, personal or medical concerns. This enables the institution to reach out to students and wrap their support services around those who need them most. Crucially, LA can enable timely, preventative interventions for students whose wellbeing may be at risk. Further, LA can even be used to determine how well new students are integrating into and participating in the institutional community.

Developing a Learning Analytics Strategy

The final output of the National Forum's project on learning analytics will be an Online Resource for Learning Analytics (ORLA), which will be available online from June 2017. ORLA will provide HEIs with key information, based on international research and good practice, to implement and sustain an effective LA strategy.

In the interim, we have compiled a brief guide (overleaf) which shows the key considerations that an institution should explore in developing an LA strategy:

1. Identifying the key question(s) which LA will address
2. Who in the institution will use LA?
3. How useable is the HEI's data currently?

4. Is current policy compatible with LA?
5. How to engage users
6. How to plan for success

Aspects of a Successful LA Implementation Strategy

1. Identifying the key question(s) which LA will address

Learning analytics answers questions. It provides institutions with accurate, timely information which enables an action or a decision. Bearing this in mind, the first decision institutions need to take is to identify the question(s) they wish to answer.

Sample questions include:

Who are our students who may be most at risk of early withdrawal or non-progression?

How well are our students meeting the learning outcomes of their modules?

How well are we meeting our strategic/statutory KPIs?

One of the best ways to establish the exact question is to ask potential users what information would assist them.

2. Who in the institution will use LA?

The best way to encourage users to adopt a new system is to ensure that it can provide them with the specific information they require. If potential users are overpowered with information that is not of use to them, they will soon switch off. Therefore, an essential primary consideration which will inform and shape the approach your institution takes is 'Who will be using it?'

The table below lists some of the potential applications of LA and the relevant stakeholders.

LA Application	Users
Enhancing learning	Lecturers Students
Early warning systems	Lecturers Student support staff Students
Learning design	Heads of department Heads of subject Lecturers
Curriculum development	Heads of department Heads of subject Lecturers
Student welfare alerts	Student support staff
Business intelligence/ KPI monitoring/ Strategic reporting	Senior management Heads of faculty Heads of department

3. How useable is HEI's data currently?

Obtaining your data can be a major challenge, especially if it is stored in the cloud and/or housed externally. Your institution may need to work with third parties to get real-time access to relevant data even if it is generated by your own staff and students.

Effective LA must be based upon accurate and up-to-date data. Any institution with an interest in LA is strongly advised to begin by assessing and, if required, optimising their data quality.

Having ensured a high degree of data quality, institutions will need to identify potential sources of data and map which data sources are best positioned to provide the answer to the question. Institutions are advised to investigate creative uses of their existing data. Answers can be found in unexpected places...

Your institution may need to develop a data warehouse which is formatted to optimise data analysis. Effective data analysis is the cornerstone of LA. To achieve successful, sustainable results, institutions will need to invest in high quality data analysis. Many institutions will be able to avail of expertise in this field which exists within the institution. There is considerable scope for collaboration across institutions for those that do not have such expertise onsite.

Institutions may also benefit from establishing iterative means of collecting new data.

4. Is current policy compatible with LA?

Institutions are strongly advised to review their existing policies and to consider establishing bespoke policies to ensure that they enable full benefit to be derived from LA.

Institutions must take steps to ensure that their use and application of LA is ethical and compliant with legislation.

5. How to engage users

The most common means of linking the user to the data is through online dashboards.

Prompting users to engage with analytics (and keeping them engaged) is one of the primary keys to successfully embedding LA in an institution. The best way to engage users is by providing them with an inviting, fit-to-purpose platform through which they can discover and work with the information they need. Broadly speaking, dashboards should be:

- Accurate
- Clear
- Visually engaging
- Comparative (rather than just descriptive)
- Informative: They should give all of the information that the user requires. They should include no more and no less than is needed.
- User-specific: A student and a lecturer, for example, may not require the same information.

6. How to plan for success

Analytics can provide your institution with much of the information required to make timely, informed decisions. Successful outcomes, however, are dependent upon an institution's capacity to respond to and take effective action based upon that information.

An early alert system, for example, will only be effective as one aspect of an institutional retention strategy. It is paramount that institutions, in implementing an LA strategy, simultaneously plan for how they will use the information that LA provides.

Additionally, optimal value is dependent upon self-reflective analytics which dynamically monitor the efficacy of actions taken and prescribe means of self-improvement where required.

References

Higher Education Authority. (2010). A study of progression in Irish higher education. Dublin: HEA.