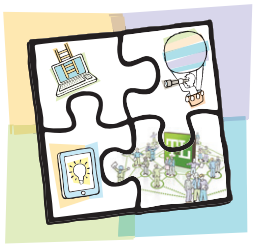
NATIONAL FORUM FOR THE ENHANCEMENT OF TEACHING AND LEARNING IN HIGHER EDUCATION



Forum Insights

Learning Analytics: Benefits for Students

March 2017

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 students in higher education. It explains what learning analytics is and aims to address some of the main concerns that students may have. It also gives examples of a number of learning analytics implementations that have been proven to support student learning and success.

What is Learning Analytics (LA)?

LA is an approach that uses data and evidence to provide you with a learning experience that is best suited to your needs. In many cases, it relies on the digital footprint that you leave when using online systems such as Blackboard, Moodle, Sakai, eLibrary platforms, etc.

Digital Footprint

As you use online services, including search engines, social media, and shopping websites, a data record is created. If, for example, you go online to buy a book, the website hosts do not just record the details you give them such as the book you want and your name and address. As part of running their websites, they can also tell further information about your transaction such as the time it occurred, where you're located, what other items you browsed, how long you looked at them, etc. This data is recorded incidentally but, by analysing it, they can get a good picture of your browsing behaviour, your shopping behaviour and the kinds of things you're interested in.

As they get more and more data from more and more users, they can start to identify patterns in how different types of people use their services. They can then use this understanding to draw your attention to other products or services that people with behaviour like yours have looked at or bought. This is how *recommender systems* work, the section that says, 'People who bought this book also bought…'

When you actually read all of this, it starts to sound a little creepy, like somebody's *WATCHING* you.

But, the thing to bear in mind is that the reason they do this isn't surveillance, it's so they can provide you with a better user experience. It means they can give you more information about things you might actually be interested in and enable you to make more informed choices and decisions without being swamped by things that don't apply to you.

Think, for example, about the last time you saw a recommender system. Did it bother you? Or did it show you something you might actually be interested in buying? How many times have you clicked into a story your social media feed said you might be interested in, because it was right? How many social media accounts or profiles do you follow because they were correctly recommended to you?

LA takes these same principles and applies them to ensure that you get a better learning experience.

You also leave the same kind of digital footprint when you use any of the online services your institution provides. By using LA, your institution can begin to use this and other data to provide you with a learning experience that is better-suited to your needs.

FAQs

- **What data about me does LA use?**

  Different applications use different sources of data, depending on what service they are trying to improve. Data from your student record may include your module registrations, grades, major, year, etc. Some demographic information about you such as your age, gender, the distance you travel to college and your CAO entry points may also be included. Often the data that is used from Blackboard/ Moodle/Sakai will include things like how active you have been, what resources you've used, marks from any online tests, etc. Data about your attendance and how frequently you use resources such as the library may also be taken into account.

- **Will my data be used against me?**

  The goal of LA is to help students, not to punish them. It is about improving learning and ensuring that students have a positive experience so there shouldn't be any reason that your data would be used in a way that would count against you.

  Implementing a LA strategy within an institution will involve students in the decision-making process so you have an opportunity to negotiate how your data can be used and for what purpose.

- **Am I protected by data protection?**

  Absolutely. Under Irish data protection laws, your student data is protected just like any other personal data. This means that your institution cannot use your data in any way that you are not informed of or that you would not expect.

- **Is my data safe?**

  Yes. Every institution has data security policies and protocols that keep your data safe. LA does not change that.

  Some institutions will engage private software companies to enable them to run LA, but any use or transfer of your data will be done in compliance with the institution's policy.

Examples of Learning Analytics

LA is, by and large, only in its earliest stages in Ireland. It is more widely used in countries such as the US, the UK and Australia. Below are a few examples of how it is being used to provide students with a better service.

- **Degree Compass**

  Degree Compass is a course recommender system that was developed at Austin Peay State University in Tennessee to help students to make informed choices about which modules they should pick. It reviews each user's curriculum, module history and previous grades and, by referencing the data of previous students with a similar profile, it recommends modules that may be a best-fit for the user. Incredibly, where it predicted that the user would get an A or B grade in a given module, its predictions were correct in 90% of cases (Denley, 2013). Imagine having that kind of personalised information when picking your modules.

- **Open Learning Initiative**

  Open Learning Initiative is a teaching platform developed by Carnegie Mellon University in Pittsburgh. It creates and hosts web-based modules, designed by a team of experts in teaching, learning, user experience and software development. In addition to giving students access to the teaching materials through various media elements such as text, animations and audio recordings, it also gives them frequent opportunities to practice what they have learnt and provides automated but personalised feedback based on how the student has done and where they may have gone wrong. In addition, it provides the lecturer with a dashboard that gives them real-time information about how the class are doing, where they might be having problems and so on. This intelligence enables them to tailor their lectures to ensure that they cover the topics that students may be struggling with.

  By using this platform, in conjunction with traditional, face-to-face classroom-based teaching, they have found that students can learn the content of a full semester just as well in half the time (Lovett et al., 2008).

- **Early Alert Systems**

  The most famous application of LA is early alert systems. These analyse students' digital footprints (and, sometimes, demographic data such as age and gender that has been found to provide a more accurate picture) to predict whether they are on target to pass the module. Like recommender systems, they look at the grades of previous students with a similar record and can predict, usually with very high accuracy, whether a student is likely to pass.

  Without an early alert system, the earliest a student knows they're not on track to pass a module is when they get a fail grade following their end-of-semester exams. Of course, by then it's far too late to do anything about it. Instead of having to wait until the end of the semester, imagine knowing things weren't going so well in the first half of the semester while you could still do something about it. Early alert systems, powered by LA, can make this possible.

Conclusion

LA holds terrific potential to offer tailored services to students that wouldn't be available any other way. Only LA, for example, has the power to predict students' performance to help them make informed decisions in time for them to have an impact.

Institutions, however, will face many challenges in implementing it. They'll need good data that they can access and use, they'll need the IT infrastructure to enable it (which will take time and money) and they'll need staff and students to agree that they think it's a good idea and to decide in partnership the best way for LA to support student success.

References

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