Learning analytics and student interventions

Moderator	Welcome to the Jisc podcast. Learning analytic specialist, Niall Sclater has been working with a number of universities to help them with the legal and ethical issues they encounter as they implement learning analytics. Here he talks about interventions with students.
Niall Sclater	Arguably there's no point in carrying out learning analytics unless it's accompanied by interventions aimed at, for example, changing student behaviour or improving the course somehow, but how do you decide when to make an intervention with students based on the analytics? At the University of Edinburgh many of the interventions are set in the context of the student's relationship with their personal tutor, as Anne-Marie Scott from the learning, teaching and web services division reports.
Anne-Marie Scott	We did quite a bit of work a few years ago to revamp our personal tutoring processes and structures and to really try, we thought our director of studies programme wasn't really working in the way we wanted it to so it was a radical overhaul and really we're seeing learning analytics feeding into that radical overhaul and making that pastoral care, academic student relationship piece which we put in place with personal tutoring strengthening that and making it more effective. So some of the interventions that we can anticipate taking would be in the context of those meetings which are already happening, preparation for those meetings or perhaps questions that might come up at those meetings.
Niall Sclater	But there's also an onus on the student to help themselves as Wilma Alexander suggests.
Wilma Alexander	Part of it, I think, goes back to what Anne-Marie's just been saying about the students having their own responsibility. So to some extent I think the intervention, if you like, takes place before the information is given to the students, so that staff outline their expectations and the learning analytics data is seen as something that empowers students to manage their own learning activity to manage their own time on task, progress, whatever you want to call it, and to identify perhaps when they need to seek further advice and information.
Niall Sclater	I asked Sharon Slade, senior lecturer at the Open University Business School how they decide when to intervene with students.

Sharon Slade	That's a really interesting question and it's something I'm quite interested in, particularly at the moment. Within the Open University we have a framework of interventions which all students receive which allows us to deliver consistent support across the piece and also ensures that all students get a minimum level of support if you like. So basic things like welcoming them to their study, prompting them that an exam's [inaudible 2.55] that kind of thing, letting them know that we've noticed they haven't submitted their first assignment, are all sort of key milestones which we've identified in their modules and in their qualifications. So there's that, which is a minimum level of service across the university. We've also identified modules which we think are particularly important to the university, so modules with a very high population or with lower retention completion rates and so they have [inaudible 3.23] if you like. The rest of it, if I'm being completely honest, would be resource constraints, so we might think it's a good idea to do certain things, but if we don't have the resource to deliver that intervention – and it's not just a case of sending an email, it's the response that you get to an intervention that is the real workload.
Niall Sclater	So what kind of interventions are taken at the Open University?
Sharon Slade	At a very basic level we'd be noticing when they do or they don't do things that we think are important and making contact to say we've noticed, do you need any help. or pointing them towards study resources which might be particularly helpful in moving forward. So at the very basic level it's that kind of thing. At a more sophisticated level it might include redesigning our teaching and learning approach. So we might change assessments; we might remove or introduce content in modules or qualifications if we've noticed that one module has a particularly poor retention or low levels of dissatisfaction, for example, we might investigate why that is and then try and remedy that.
Niall Sclater	I wondered whether people felt there was an obligation on the students themselves to act on the basis of the learning analytics.
Sharon Slade	No of course not, no. They're adults and there's no obligation for them to act on the advice, not at all, no. What we're trying to do is to provide advice that we think will be helpful to them. Would we want them to act upon it? Of course we would, but do they have an obligation, absolutely not, no.
Niall Sclater	Anne-Marie Scott at Edinburgh, however, believes there is some kind of obligation on the students to act.
Anne-Marie Scott	I think it's important that this isn't seen as a passive spoon-feeding sort of exercise but, again, it's not necessarily specific to learning analytics. I think you could apply the same to feedback that we give on assignments. There is an obligation on the part of the student to digest and act upon that as well. So I think we need to contextualise any use of learning analytics within that wider set of responsibilities that we feel our students have because making best use of their four years with us is a two-way process.

Niall Sclater	It may be here that the word obligation is being interpreted differently by Sharon and Anne-Marie. There may be no strict academic requirement to act on the basis of any predictions, but as the technologies improve we may increasingly suggest to students that they'd be well advised to consider what the analytics is telling them. Now some of these interventions may be automated of course, but others are taken by humans and I wanted to discover what impact these were having on staff. Sharon Slade.
Sharon Slade	Well it's underway at the moment. All student support teams are using our student support tool, which as I mentioned earlier identifies students with particular characteristics or behaviours, study behaviours, and they already create a whole range of interventions based on those triggers. So that's business as usual now. How we move forward into the future with possible use of the predictive modelling remains to be seen I think, to a certain extent, and if we were to start to include that kind of work as business as usual, we'd need to think very carefully about which staff are engaging with model outputs, whether or not they have sufficient understanding in order to interpret sensibly any outputs from models or whether or not that was better managed in a different way. So a lot of that predictive work and how it can be mainstreamed needs to be carefully thought through, but certainly student support teams are already dealing with what we would call learning analytics.
Niall Sclater	I asked Anne-Marie Scott too about the impact on staff roles.
Anne-Marie Scott	I think we have a good range of well-established interventions for different scenarios and we see learning analytics as being another trigger for existing intervention activities, and perhaps a trigger that allows us to intervene in a more timely fashion or perhaps sometimes in a more appropriate fashion or well informed fashion, but not necessarily to introduce a whole new set of interventions.
Niall Sclater	There's also potentially some staff training needed as Anne-Marie points out.
Anne-Marie Scott	I think the only other thing in there might be the training and development role. We don't want anything we do to be particularly burdensome but it will still be another source of information that needs to be understood. We may find things in the learning analytics space that are then useful to course teams and programme teams when they come to reconsider their course at that [inaudible 8.27] programme or course [inaudible 8.28] stages. So there might be some additional training or understanding for those staff as well in how to take learning analytics information from courses you have run and work it out and maybe change up your course in the future.
Niall Sclater	We've been discussing the impact on staff of taking interventions with students, but could we not speed things up and save money by having these interventions automated where possible or are they always better taken by a person?
Sharon Slade	I think most interventions are better taken by a person actually than an automated process. So where we're talking about advice we know from our previous research and our engagement with students that when it's delivered by a real human being it's better

absorbed and more usually acted upon than receiving an email. Our students receive lots of emails from lots of different sources and they're more likely to ignore that than they are a direct contact from their tutor say or somebody calling them. But clearly there are resource constraints in delivering that sort of human based intervention, so reality has to kick in at some point.

Niall Sclater   There's also a clear preference for human input at Edinburgh.

Anne-Marie Scott   Absolutely. Well again it depends on your understanding of interventions, but if you understand that as a very active piece of work I would say at the moment it would almost certainly be through a person rather than automated. Even if it's automated I think if it's an automated email generated by a system, one would still wish it to have a person's name on it somewhere because if you're asking a student to do a thing, you need to be very clear about where they can get help and support for the thing that you're asking them to do. So there might be some kind of basic efficiency things in there but they would always need to have some sort of personal presence within them.

Niall Sclater   A lot of people have expressed concern about the potential adverse impacts of learning analytics. I asked Sharon what some of these might be and how they minimise the chance of them happening at the Open University?

Sharon Slade   There are lots of potential adverse impacts on the students I think and that's primarily why we started to think about whether or not we needed an ethical policy. Clearly there are dangers that we constrain our students in ways that they may not find helpful by saying that they shouldn't do certain things or we prevent them possibly from moving onto a module which they might be completely capable of studying successfully. We may unhelpfully label students, so we make assumptions about them based only on their data. They may find that unhelpful. There are lots of adverse impacts which students might feel.

How we minimise those? Well we've got our own sort of code of practice if you like based within our policy which sets out the ways in which we hope that [inaudible 11.31] the student data will be aware of some of the issues and take more care, I suppose, to prevent those things happening. So don't assume that just because a student has a particular disability, they are not going to have the same chances of success as another student without. Lots of things like that and we've produced a range of case studies for practical guidance and a set of FAQs as well for staff and for students actually, which set out or answer some of the questions that have been flagged throughout our consultations. I think it's about transparency and it's about information as far as we're able. So that's what we're aiming towards at the moment, so making it all as transparent as we possibly can so that everybody who's dealing with student data or maybe receiving an intervention has as much information about why that's happened as possible.

Niall Sclater   One of the things we need to be careful with in particular is that analytics doesn't make us treat students as numbers and that we take their individual circumstances into

consideration. I asked Anne-Marie and Wilma whether this had been discussed at Edinburgh.

Anne-Marie Scott   I think this is where the conversation with the personal tutor or some of the other touchpoints that we have between staff and students are very important because for all that we can gather a certain amount of data through the information that's recorded in our student systems, actually some of what's going on with any person, at any point in time, you can only get through talking to them.

Wilma Alexander   I think it's back to everything we've said already, but also the OU guidelines and the guidelines you've been involved in developing that there is no question that learning analytics data would be seen as anything other than a very small part of the story. So with any individual there's going to be a lot of other elements in the mix, if you like, before we make any kind of judgement call.

Anne-Marie Scott   Yeah, we are definitely not looking to use learning analytics as a way of putting any distance between the staff and the students.

Niall Sclater   I asked Sharon too if ignoring personal circumstances might be more of an issue at the Open University due to the sheer number of distance students there.

Sharon Slade   That's very difficult and I think we wouldn't be being realistic if we said that there's no way that that wouldn't happen because clearly it does happen now. It would help if we had a full picture about our students but clearly we can never have a complete picture. But what we do need is for our student records to be as complete and as up-to-date as they can be. I think moving forward, if it's feasible and if it can be scaled, then we would probably do better by delivering a lot of our interventions via a person. That would help to have some sort of translation process whereby, say, our interventions were always delivered through our tutors rather than an impersonal email. So if the tutor had sort of first sight of something and is more likely than any other member of staff certainly at the Open University to understand what else might be going on with that student at that time, that would be one way of helping to include all relevant information, but at the moment that scale, at our scale certainly, it's very difficult to make sure that we've got all of the relevant information.

Niall Sclater   Another issue to watch out for is to make sure the analytics don't lead us to favouring one group of students over another. Is this an issue at the Open University?

Sharon Slade   I think so, and again this is an issue that we need to think very carefully about. At the moment our focus in the university is improving completion and retention. That's very much what's driving the sorts of contacts that we're sending. So we want students to get to the end of their modules primarily, and we want them to go onto their next module in order to complete their qualifications. Once we've managed to deal with that and it's completely business as usual, we need to be looking at how we improve the whole study experience for all students, how we improve the grades for students. That should be a focus of attention. It

shouldn't just be about making sure students get to the end, it should be about improving the whole study experience. So I think there is definitely a focus still on the students who are more likely not to pass their courses or their modules, and that needs to change going forward. Obviously we need to keep those students but we need to broaden the application I think as we go forward.

Niall Sclater   Anne-Marie and Wilma have also thought about this a lot at Edinburgh.

Anne-Marie Scott   Absolutely, and that's why I think we need to be very clear about the [purposes at 16.19] Edinburgh because some of the conversations around students at risk and retention has raised questions about is that a deficit model of pastoral care, as in are you looking for students who are in that at risk category and then kind of assuming the rest are all okay, so you just leave them to get on with it and you only focus on a small number. I think, because we feel it doesn't fit into our retention space at this institution, when we talk about our purposes they're going to be very strong weighted towards helping all students achieve their potential, but I think we have to really work at countering some of what's happening in other institutions and people see happening in other institutions explain what it means to Edinburgh.

Wilma Alexander   I think it's quite important that we stay away from the deficit model. In fact I guess the other area where there's a possibility of it not being a completely level playing field is that learning analytics, as we're implementing them, favour online course or purely online courses over some of the more traditional campus based courses, simply because the data that we have from online activity is more plentiful, it's more meaningful and in some sense it's easier to work with. Very basic data about logins and time online is actually a meaningful proxy for activity in terms of a purely online course, when it may not be meaningful on campus. So in that sense learning analytics might favour ODL students at the moment in terms of being a more useful tool. I don't think there's a problem with that because it's such a different context and it could be argued that we still have some distance to go in ensuring a completely level playing field for students regardless of whether they're online distance or on campus. So learning analytics, if you like, might do something towards making up for some of the things that are just more easily done face-to-face as we're currently [constituted 18.53].

Niall Sclater   Finally I asked whether institutions need to be prepared to act if the analytics shows that a student is at risk of serious harm and whether you could override privacy restrictions in such a situation. This has a legal as well as an ethical side, so I asked Andrew Cormack first, from Jisc Technologies, for his thoughts.

Andrew Cormack   Serious harm, there is a provision in the Data Protection Act where the vital interests of the [data 19.20] subject are effected, which is I think interpreted as basically life or serious injury. So there's a provision that you could do it there. That I don't think requires you to intervene. There might be other laws, particularly if you look at further education rather than higher education. FE does have a safeguarding requirement for its pupils or students,

so there may be something that came out of safeguarding that says if you know that this, or if you get signs that this individual is at risk, serious risk, then you are required to intervene. And there are other laws that create that kind of duty – health and safety, things like that, whether those would come in to apply duties to the results of learning analytics one day I'm not sure. I think we'd need a lot of clarity out of regulators because the vital interests' justification at the moment is fairly well understood. So the canonical case is a gas board who cut off the supply to an elderly couple because they hadn't paid their bill and claimed that they weren't telling the council that these two were freezing in their home because of data protection, which is widely ridiculed [inaudible 20.46] that exactly where the vital interests should come in, so that you are able to disclose because of the threat to life or injury. Whether an obligation would come in, I think you'd need to go back to the regulators of the particular laws it would come out of.

Niall Sclater	I also asked Susan Graham, university records manager at Edinburgh what she thought we should do if the analytics shows that a student is at risk of harm.
Susan Graham	This is a significant ethical question which often comes up within learning analytics. I'd first of all question how much certainty we can obtain from analytics alone that a student is at risk of serious harm. What analytics might give us is potentially indicators of risk but, without further contextual information, that's a big deduction to make that somebody is genuinely at risk of serious harm. As I said I'm slightly dubious that analytics alone can give us that certainty. What analytics of course can give us is indicators that there may be cause for concern which should be raised with the student. Where the issue goes from there obviously depends on the interactions with the student and I would suggest fall within university's normal operating processes, rather than being a learning analytics specific question.
Niall Sclater	Wilma believes the processes are already in place at Edinburgh and that the addition of learning analytics doesn't fundamentally alter the situation regarding students at risk of serious harm.
Wilma Alexander	There are already very detailed guidelines and a very well thought through system of referral, if you like, should an individual member of staff have a concern of that sort. So it being surfaced through learning analytics, rather than through the behaviour of a student in a tutorial, for example. The guidelines are perfectly applicable in either case, so we're very comfortable that we already have those procedures.
Niall Sclater	So it's clear there's a lot to think about when planning and carrying out interventions. There's a preference at both Edinburgh and the Open University to intervene through humans where possible, and analytics is seen very much as another tool at Edinburgh to help the student's relationship with their personal tutor. But clearly this isn't always going to be possible and students may get increasingly used to automated processes, dashboards and apps which give them better indications of how they're progressing and what they need to do to improve. There are, however, some potential adverse impacts that we need to watch

out for. These include ignoring personal circumstances and treating students as numbers, and maybe potentially favouring one group of students over another. The analytics might also give us better indications that a student is at risk of serious harm. While there may not be a strict legal obligation to do something about this at universities, procedures are normally already in place to deal with these kinds of situations. In fact fitting learning analytics interventions into existing procedures and processes, rather than creating new roles or doing something radically different, seems to be very much the philosophy and that may well be likely to result in greater acceptance by staff and students.

[ENDS]