



Can we improve student engagement through the use of learning analytics?

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Centre for Student and Community Engagement
Nottingham Trent University



The next 2 hours

What are our fundamental models of learning?

Big data/ learning analytics– why we should be concerned
(unless you're white, male, wealthy & live in silicon valley)

What data do we currently use in our dealings with students?

What do we know about our students through learning analytics?

Why would we think LA could help learners?



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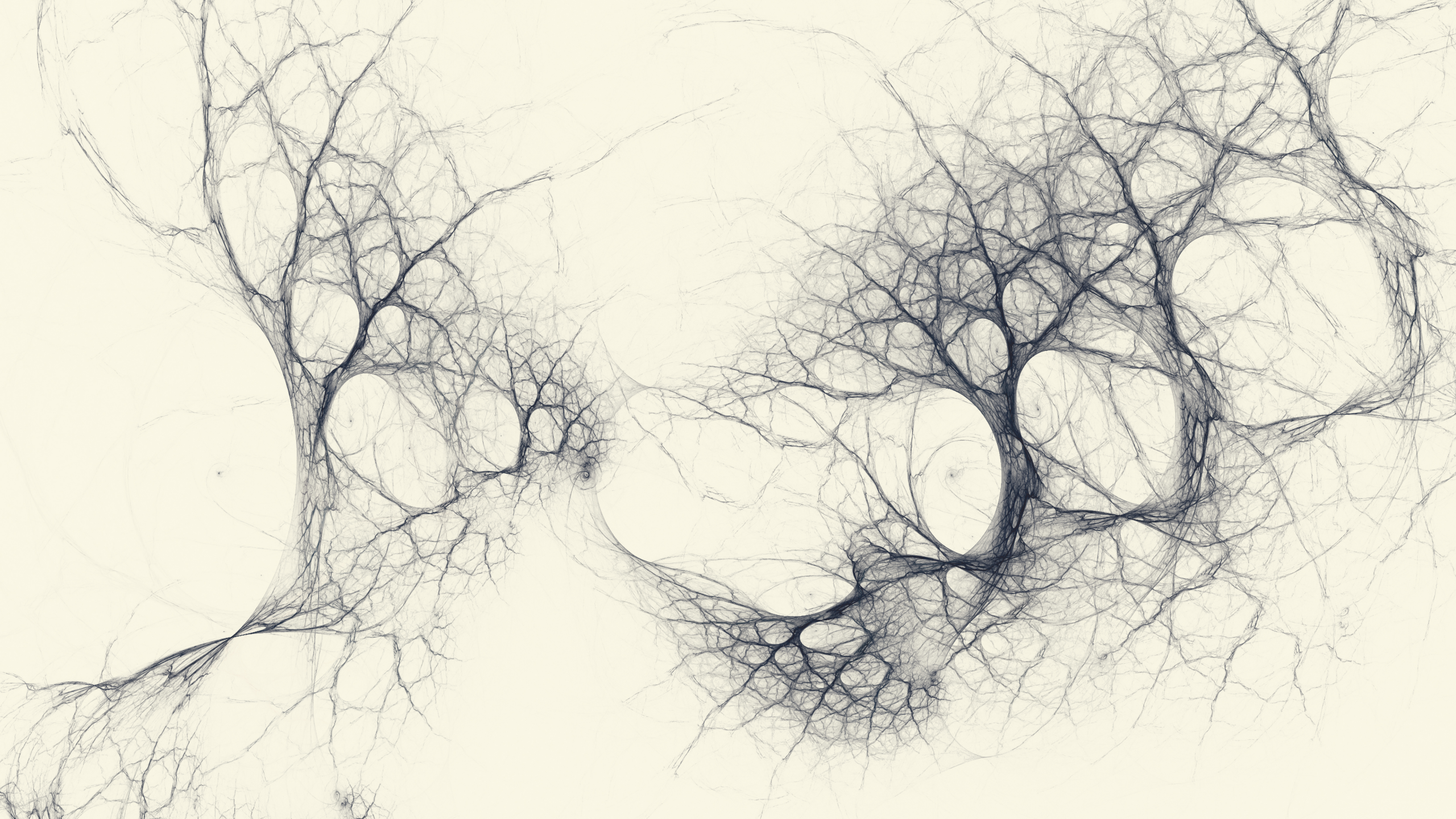
What are our fundamental models about learning/ learners?

- Your mission is to write a grand unifying theory of the elements needed to be a successful learner
 - In 15 minutes
 - In groups
 - Without falling out
 - And it has to look pretty



What are our fundamental models about learning/ learners?

- Group discussion
 - Let's find out about our models
 - What do we have in common/ different?
 - What might make a final single model?

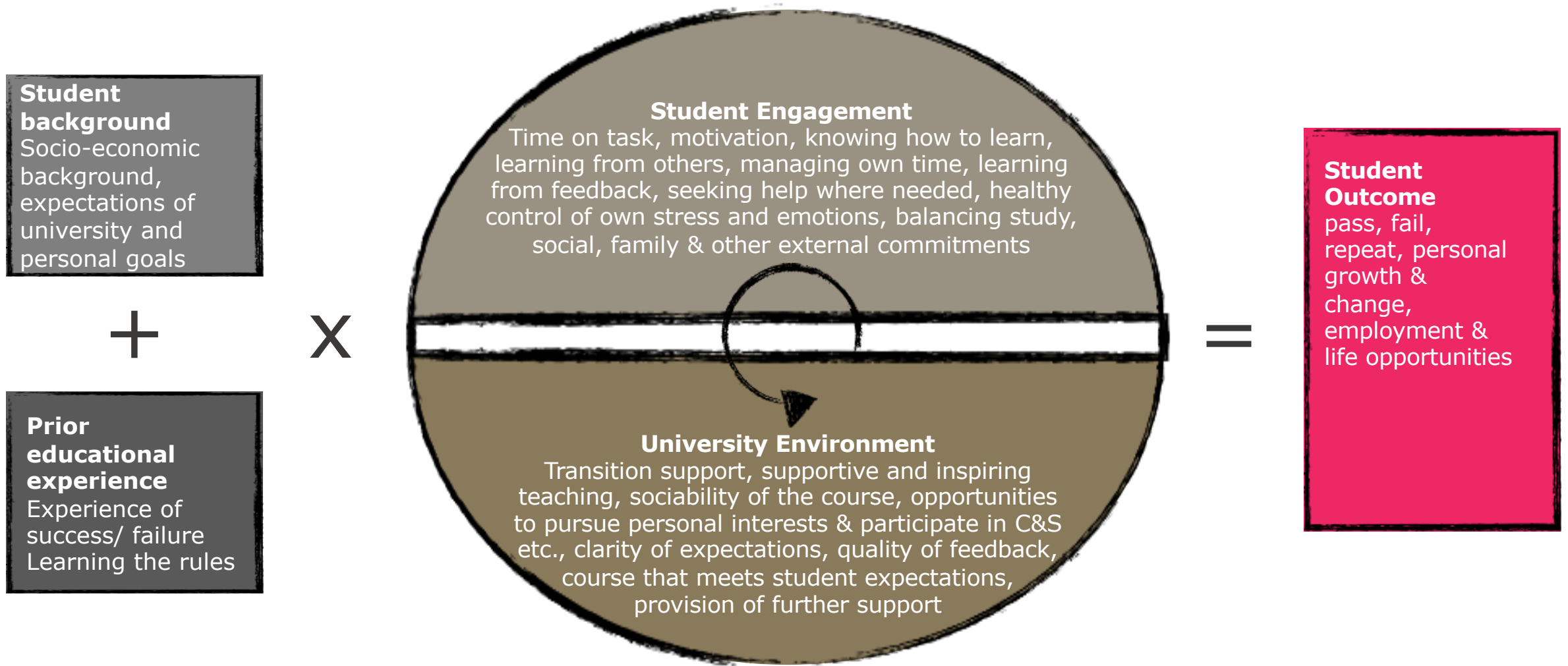




Student Engagement

- Multiple views
 - Student voice & representation
- Engagement with academically important activities
 - North American - George Kuh (NSSE)
 - Criticised as *potentially* behaviourist
- Black box of complex interactions
 - European/ Australia - Colin Bryson
 - Social constructivist (but risks making learners unknowably complicated)

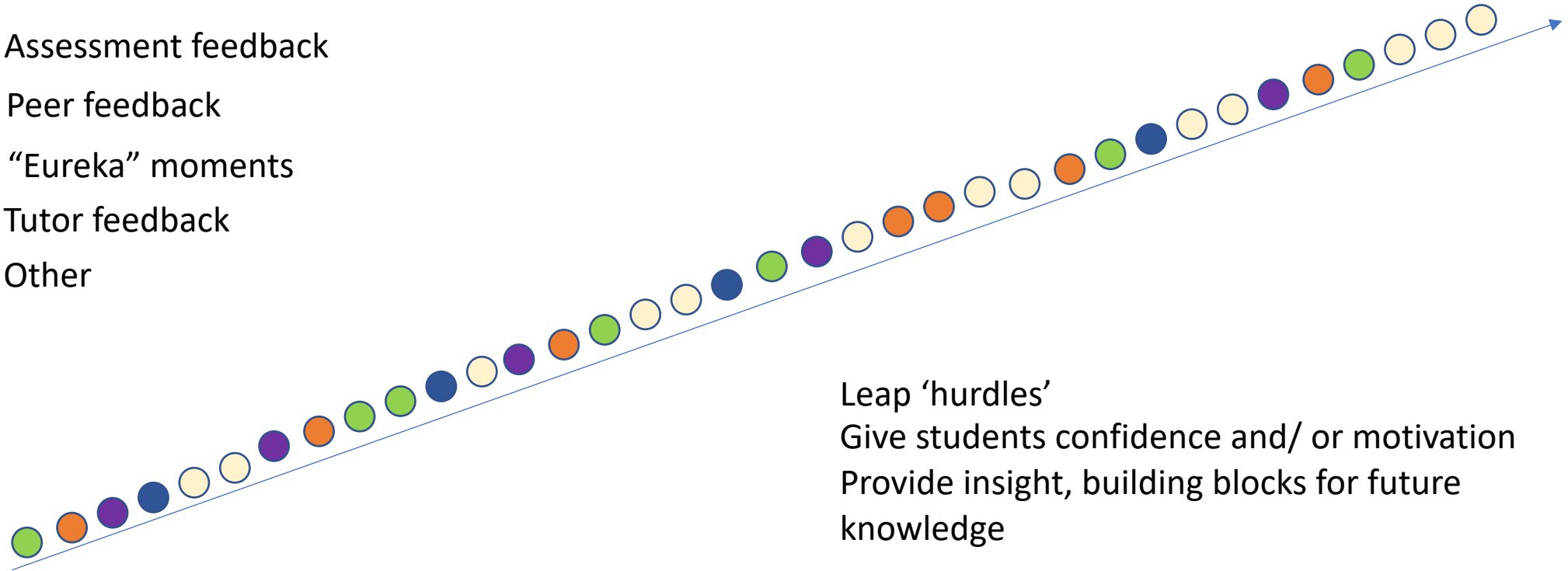
A student engagement view



Engagement view of student journey

Meaningful learning experiences

- Assessment feedback
- Peer feedback
- “Eureka” moments
- Tutor feedback
- Other



The Student who entered NTU

- Skills,
- knowledge
- motivation
- experience

1st year

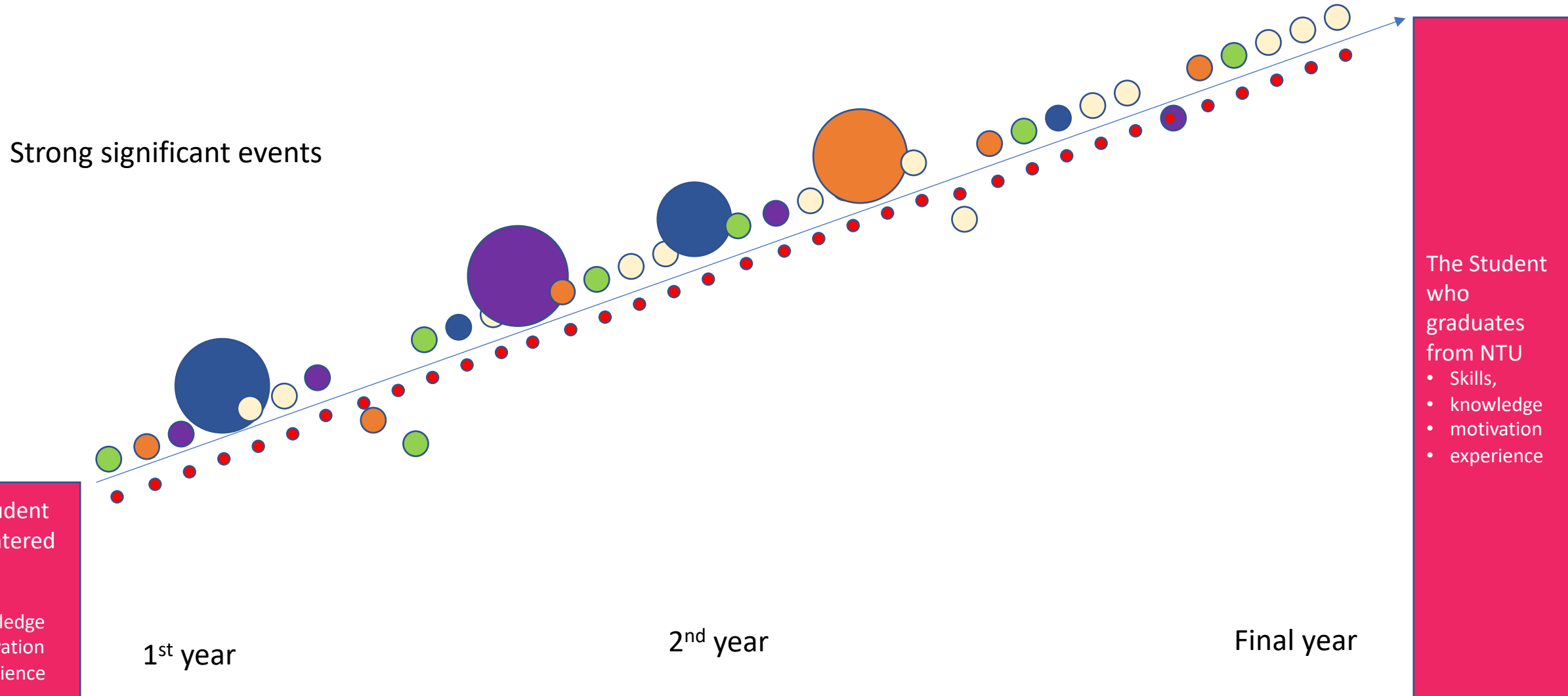
2nd year

Final year

The Student who graduates from NTU

- Skills,
- knowledge
- motivation
- experience

Student Engagement





Big data

- Large data sets used to better understand behaviours of consumers and citizens
(Surveillance capitalism)
- Arguably require supermassive data sets and super computers
- Arguably provide insights unattainable by individuals & enable *personalisation* of services at large scale
 - Amazon recommendations
 - Netflix algorithm

Be afraid

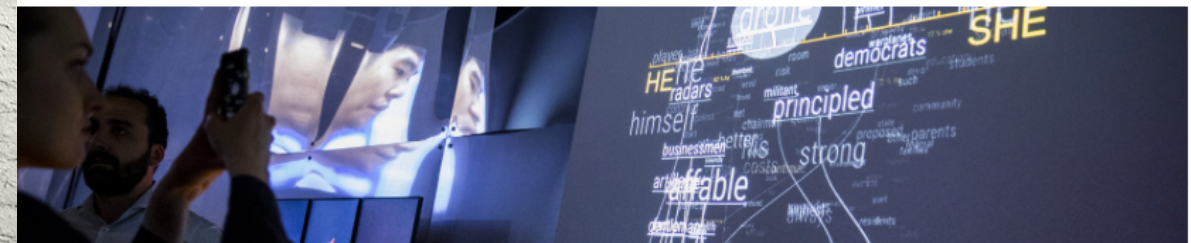
- [Weapons of Math Destruction](#)
- [Algorithms of Oppression](#)
- [Google profits from Paedophiles](#)
- [Class Care](#)



EMERGING TECHNOLOGIES 6 JUNE 2019

How Big Tech funds the debate on AI ethics

The Silicon Valley giants are spending billions developing AI, but they are also funding the people setting the technology's most fundamental principles.



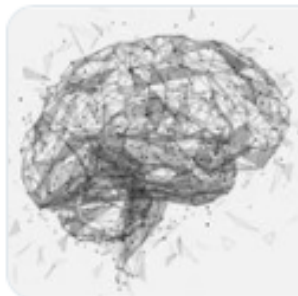


Northumbria Uni ✓

@NorthumbriaUni

Follow

We're serious about student mental health. We're delighted to announce we're leading a major project to transform how the Higher Education sector identifies mental health issues in students. Read more 🖱️



Northumbria University to lead transformation in h...

A sector changing project using advanced data capture and student facing educational analytics will help to generate early warning signs for students' mental hea...

northumbria.ac.uk

9:40 AM - 5 Jun 2019

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arteveldehogeschool



University Medical Center
Utrecht



Daniel Hunt @mynameisdanhunt · Jun 5

Replying to @NorthumbriaUni

You know what won't help student mental health? The knowledge that a faceless surveillance system run by institution that awards their degree is monitoring their online activities.

1 4 14



Daniel Hunt @mynameisdanhunt · Jun 5

Because this sort of thing has worked so well in the past...



Samaritans pulls 'suicide watch' Radar app over privacy concerns

Charity's new Twitter app sends an alert to users when people they follow post messages that suggest suicidal thoughts

theguardian.com



Datafication of society

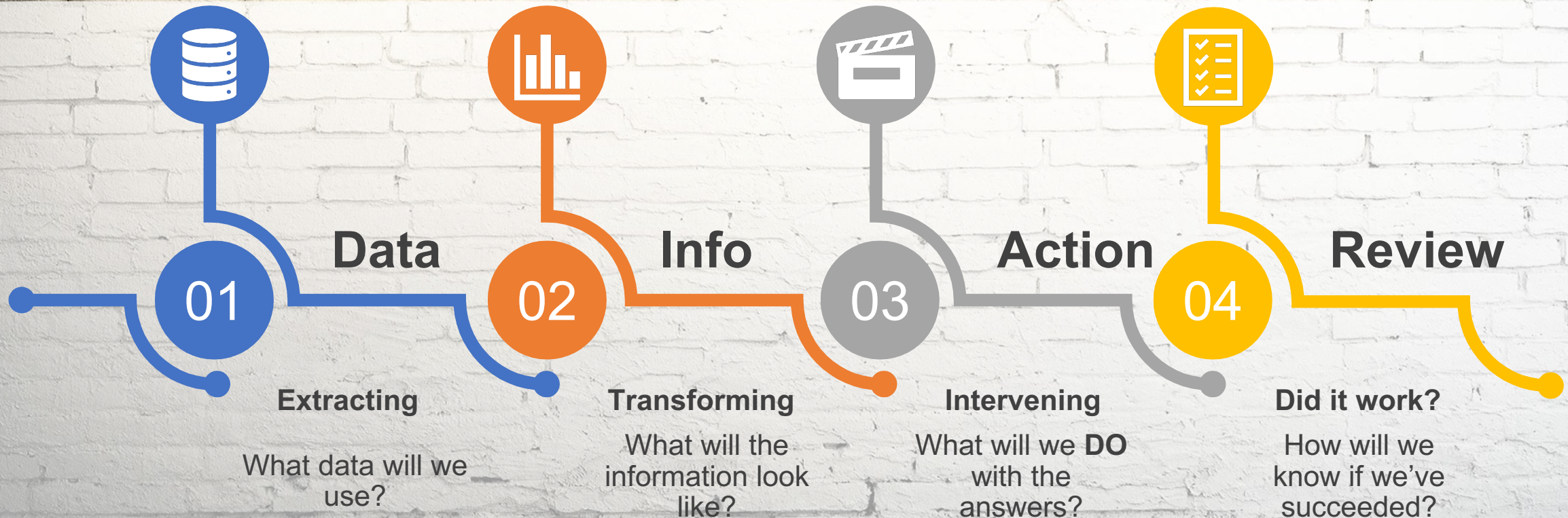
- Politics, management & planning departments
- If we can see it in a chart we have solved the problem
- Also part of blame culture
 - UK Universities are expected to close the attainment gaps between the richest and poorest students to increasingly specific targets
 - Irrespective of institutions' power to achieve such change
- Products such as Tableau, Power BI
- Defining the problem/ gap \neq as fixing it



‘Learning’/ ‘Learner’ Analytics?

- The sector can’t quite agree a [definition](#)
- *In my view, Learning Analytics is about **collecting traces that learners leave behind and using those traces to improve learning***
 - Erik Duval
- Potential benefits
 - Improved learner self-regulation
 - More accurate prediction of ‘risk’ & subsequent support
 - Increased resource efficiency
 - Curriculum change
 - Personalisation of learning

How should LA work?





Your use of data

Working in pairs/small groups

Please take a look at the following questions
(10 mins)

We will discuss the issues as a whole group afterwards



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Discussion

What decisions do you make about students?

What data do you currently have to help you make decisions?

In a perfect world, what additional data would you want?

What are the biggest challenges of using more data?



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Learning Analytics History

- Started in the US (mid 2000's)
- MOOCs
- Transnational bodies ([Society for Learning Analytics Research](#))
- National bodies ([SURF](#), [Jisc](#), [T&L](#))
- Tie to national sectoral anxieties
 - Retention (UK), matching/ study efficiency (Netherlands/ Belgium)
- Significant Private companies & institutional developers
- Challenges about achieving early promise



Development of Analytics at NTU

- Pilot year 2013-14 (500 students)
- & full implementation from 2014/15 (ca 30,000 students)
- Students can see their own Dashboard
- Staff can see students Dashboards depending on level of responsibility
- Resource developed by www.Solutionpath.co.uk

SOLUTIONPATH



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NTU's Vision for Learning Analytics

- Our focus is on engagement, not risk of failure
- We use the best proxy for engagement we can using students' electronic footprint
- We do not measure socio-economic disadvantage
- Developed from involvement in national research into student retention: 'What Works'



Student-Managed Success

- Providing students with data to self-regulate own learning
- Comparisons to peers
- Assignments & feedback



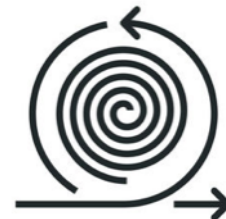
Staff-Supported Success

- Insights and information for staff about students
- Referrals to professional services



Improving staff-student working relationships

- Sense making about students
- Information for personalised tutorial discussions

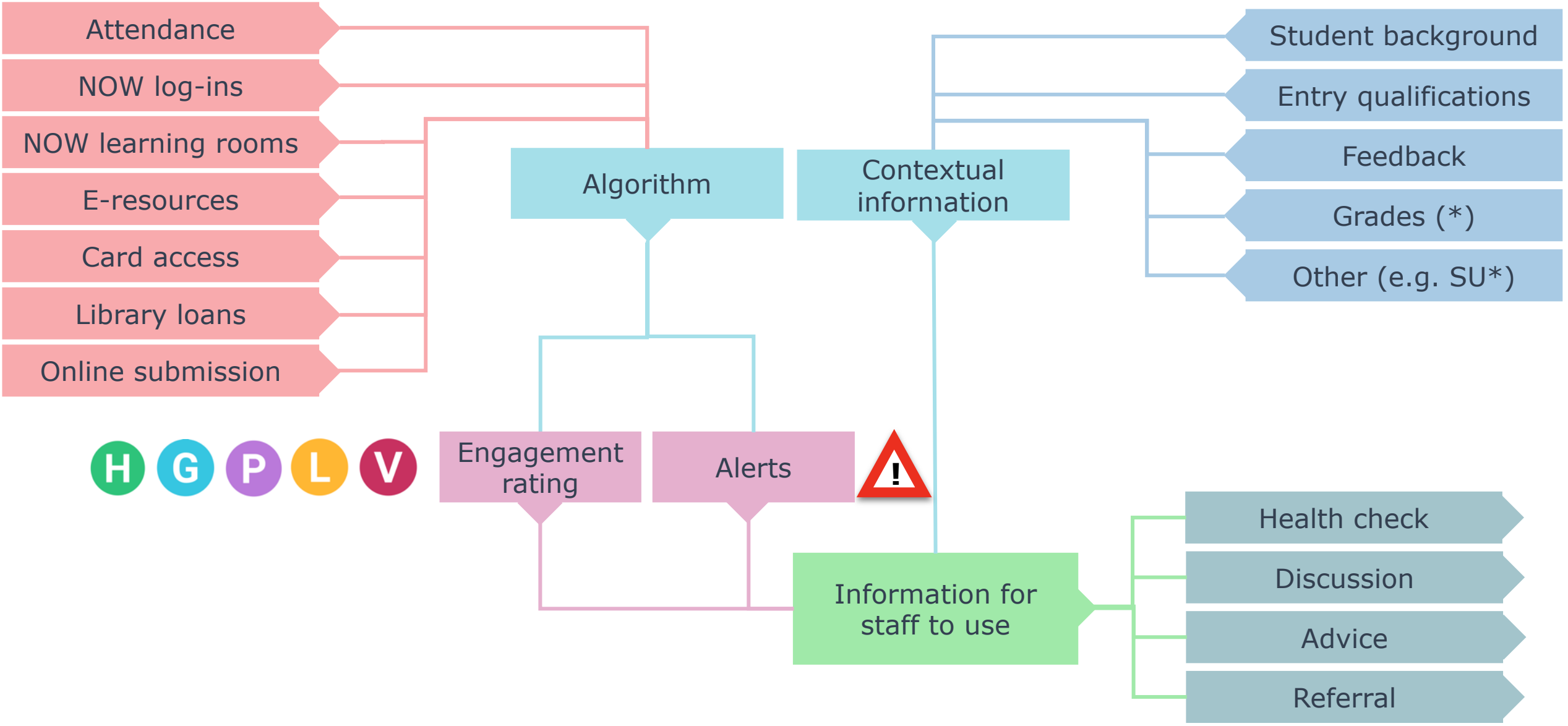


Improving institutional data, insights & systems

- Cohort insight
- Usable data for research purposes

NTU Student Dashboard

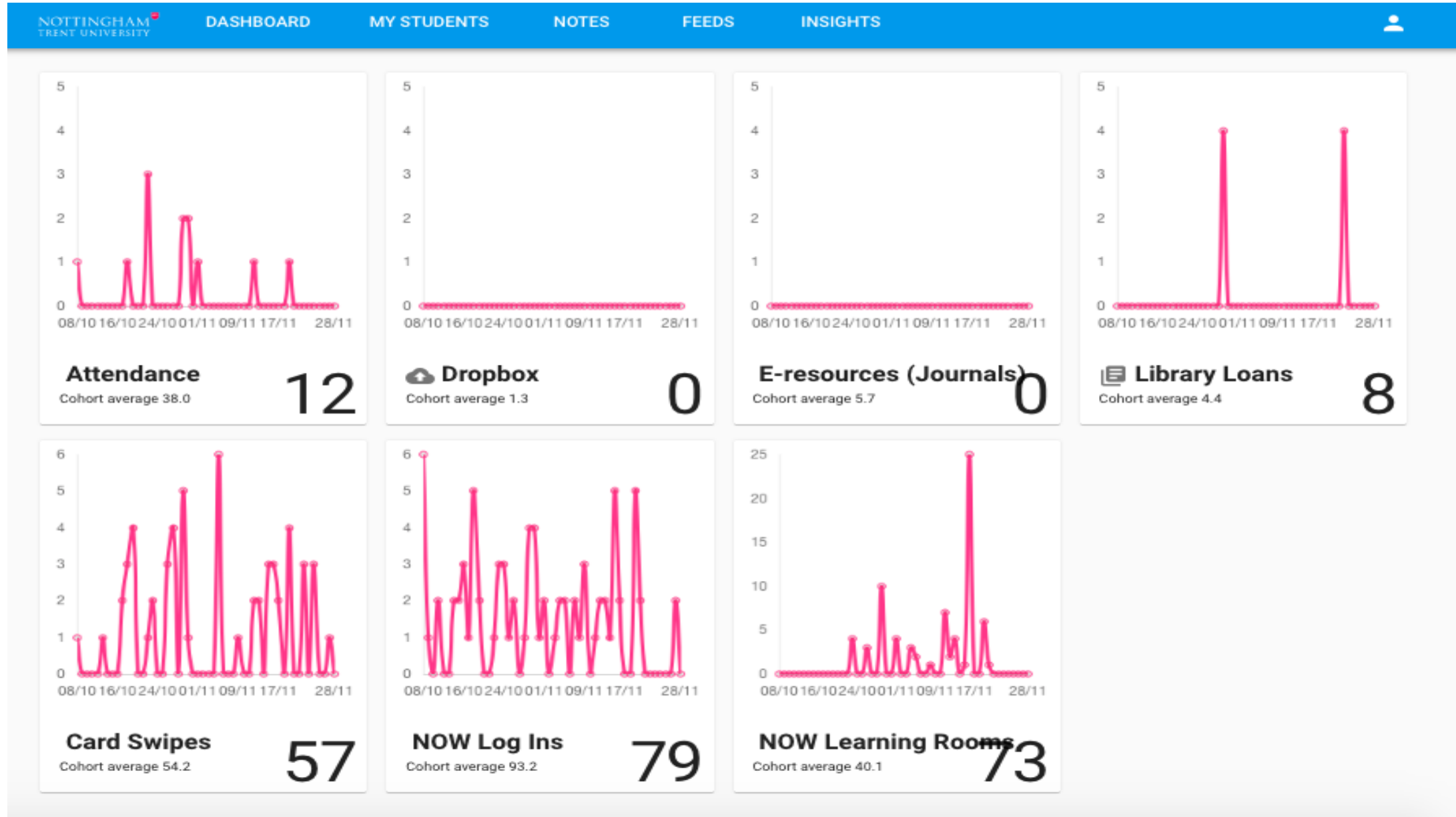
(* = work not yet complete)




Student Dashboard



Dashboard Data Sources




Intervention 1 - Referral




Note




06/11/2018

Not Applicable

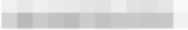
 IN PROGRESS




Description

- Currently in contact with someone, maybe from student services, concerning mental health issues. -  believes she may be entitled to some sort of disability allowance. - I have advised  to contact student services regarding any mental health issues, if she hasn't done so already. -  has suggested that her mental health issues have affected her ability to attend uni and to complete work.

Author



Student name



Note ID

103955

Communication approach

Face to face

Actions

Contact student services for advice on any mental health issues.

Target date


Send me email reminder in

No reminder

Note Category

Not Applicable

Student ID



Opened

06/11/2018


Communication date

19/10/2018

Meeting duration


10 minutes

Comments


 This Note has been referred to Student Support
06/11/2018 14:23


☒ I confirm I have consent to make this Referral


Referral Received by SSS

 09/11/2018 14:03




Add comment

 DELETE

 EDIT

 COMPLETE

Intervention 2 – Follow up

 **Note** **20/11/2018** **Not Applicable**  **NEW** 


Description


Dear All, I have just met with a year one student L [REDACTED] and her support worker. [REDACTED] is suffering with some quite major mental health issues, which she is working through with the help of student support. She is behind with her work but really wants to catch up with what she has missed to date. She is going to email all tutors to request a meeting to talk about what she needs to catch up on which is being assessed. I have made her aware that if she needs an extension she could have one but she would like to try and get the work completed for the deadline so she can go home and rest over Christmas.


Author [REDACTED]	Note Category Not Applicable
Student name [REDACTED]	Student ID [REDACTED]
Note ID 106732	Opened 20/11/2018
Communication approach Face to face	Communication date 20/11/2018
Actions Email tutors to get support with work missed to date	Meeting duration 30 minutes
Target date	
Send me email reminder in No reminder	

Comments

No comments added for this note. Be the first one to comment.

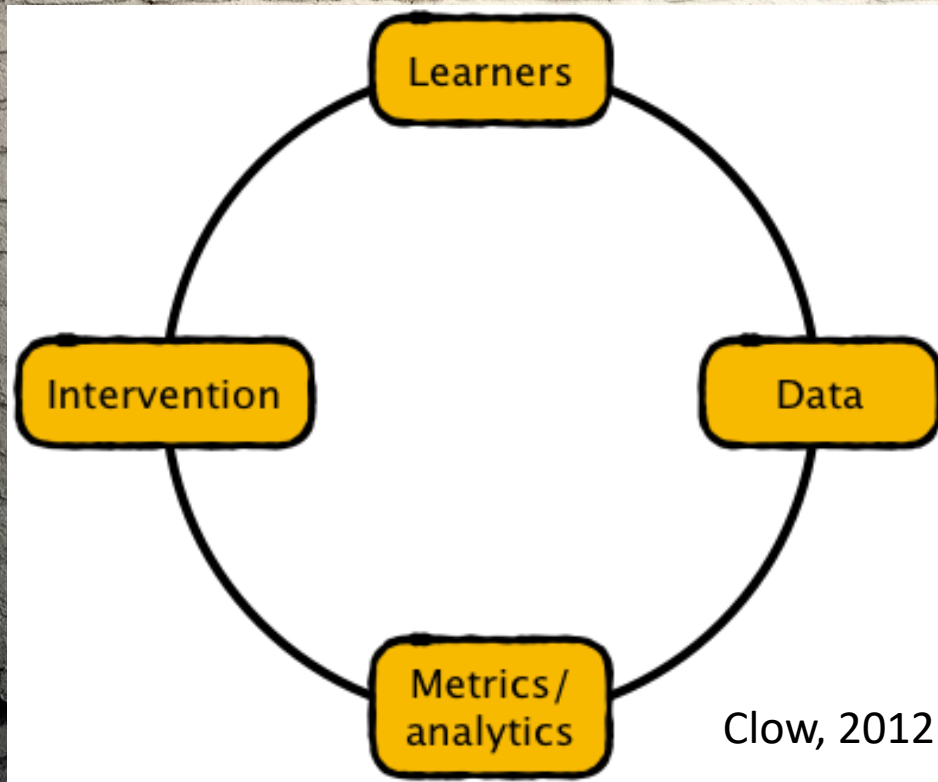
 **DELETE**

 **EDIT**

 **COMPLETE**

Add comment

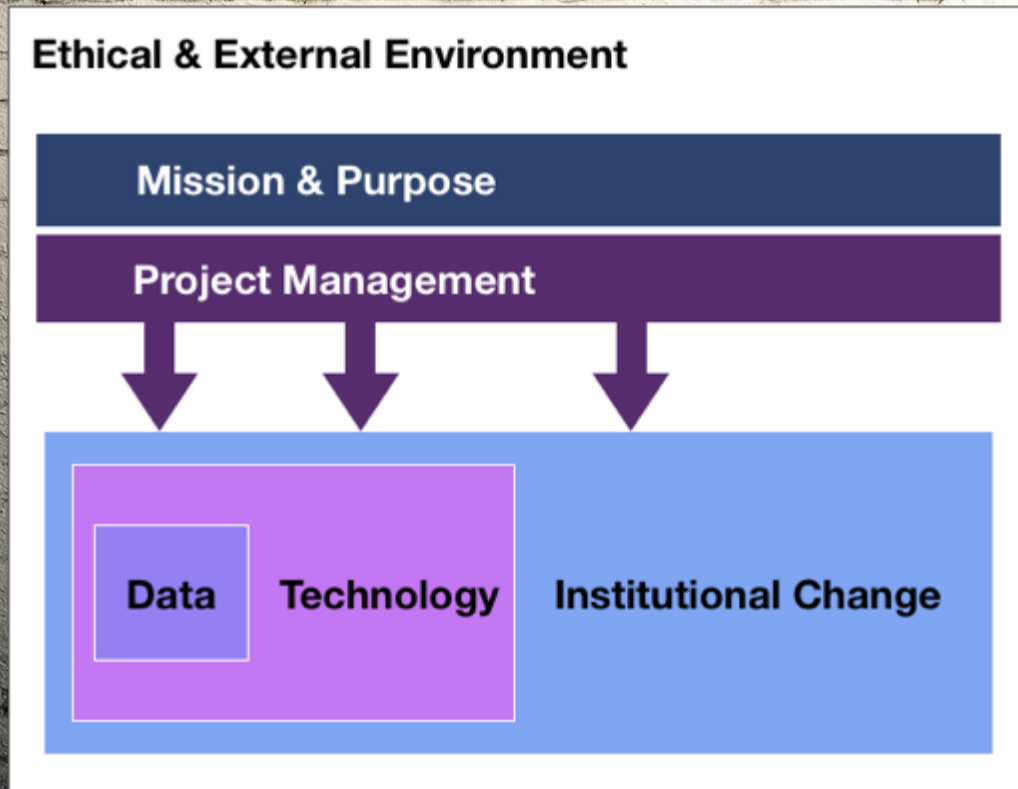
Why isn't the sector achieving the early promise of Learning Analytics?



- May have the wrong model & real lack of understanding about learning and supporting learning
- Need psychology, not information technology
- Identifying students at risk \neq changing outcomes



Where are the challenges for Unis?



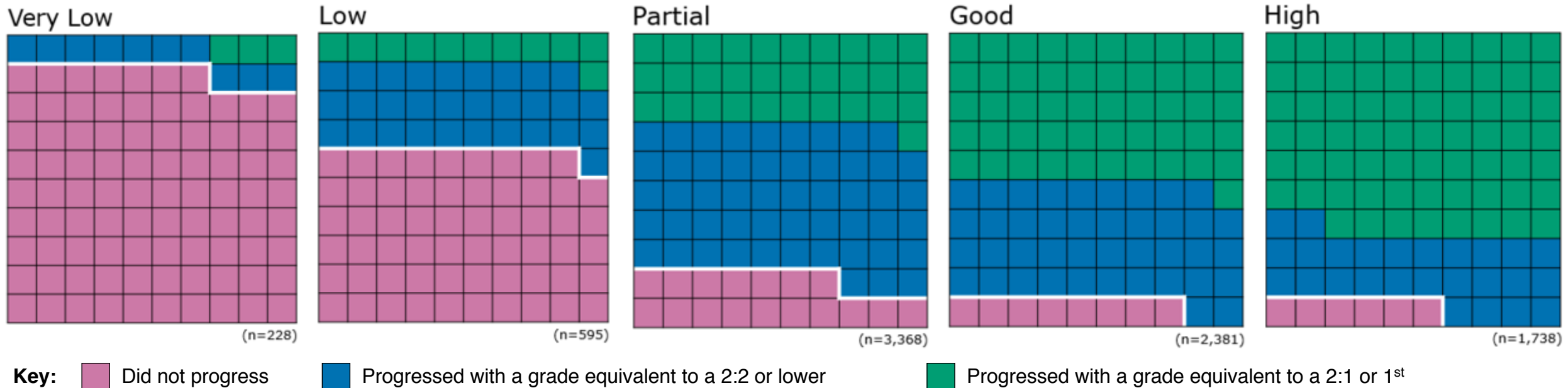
- Significant challenges about the balance of intrusion/ benefit
- LA is complicated technology
 - At the end of multiple computing processes
- Lots of loosely defined potential
- How do you actually use it?
- [ABLE](#)

Relationship between engagement & success

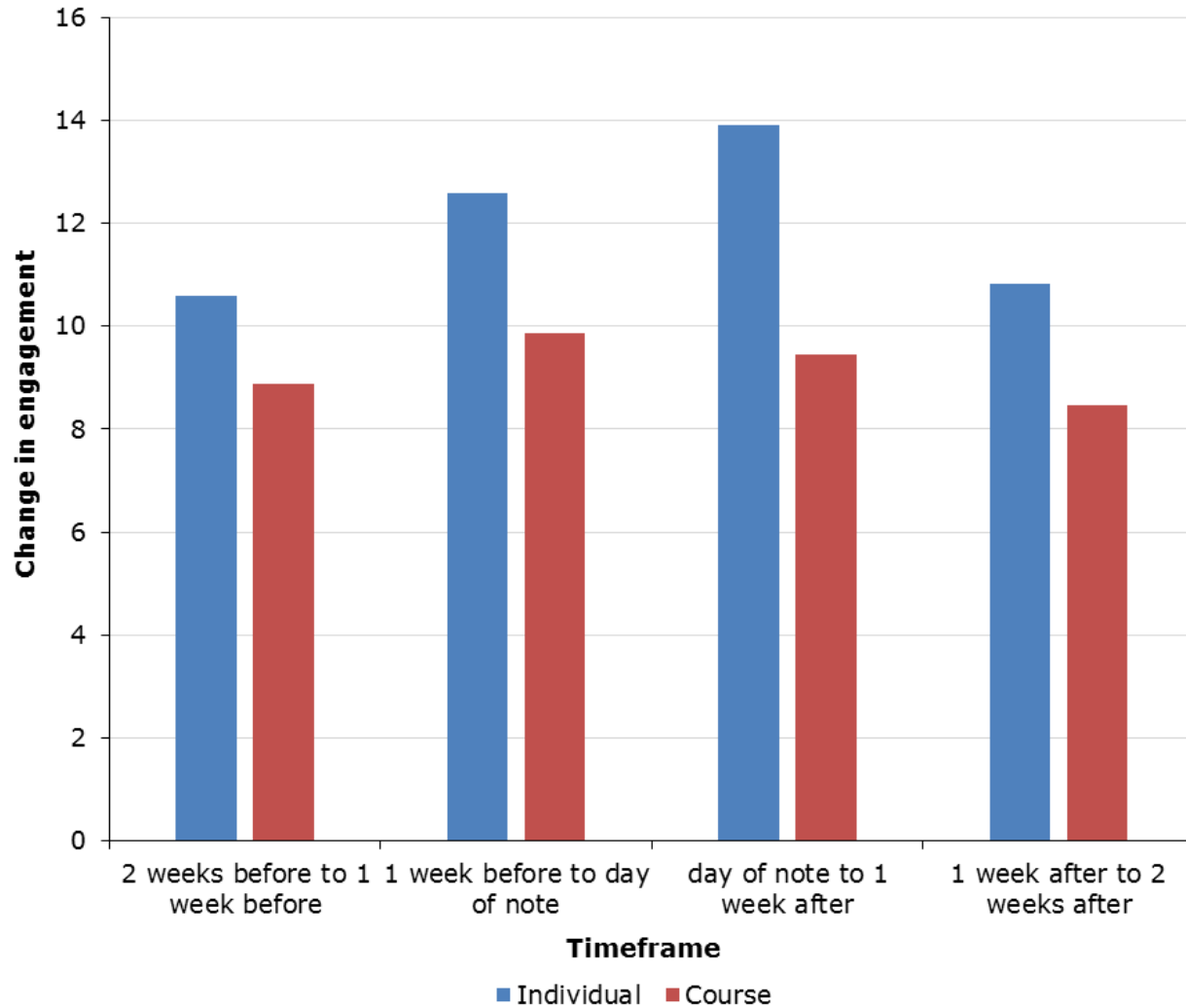
LA is very effective at spotting risk: evidence from the NTU Student Dashboard

The measure used is average engagement for the complete year

High predictive quality, but by that point in the year, low actionability



Change in engagement in timeframe surrounding the note
from the Library Learning and Teaching Team



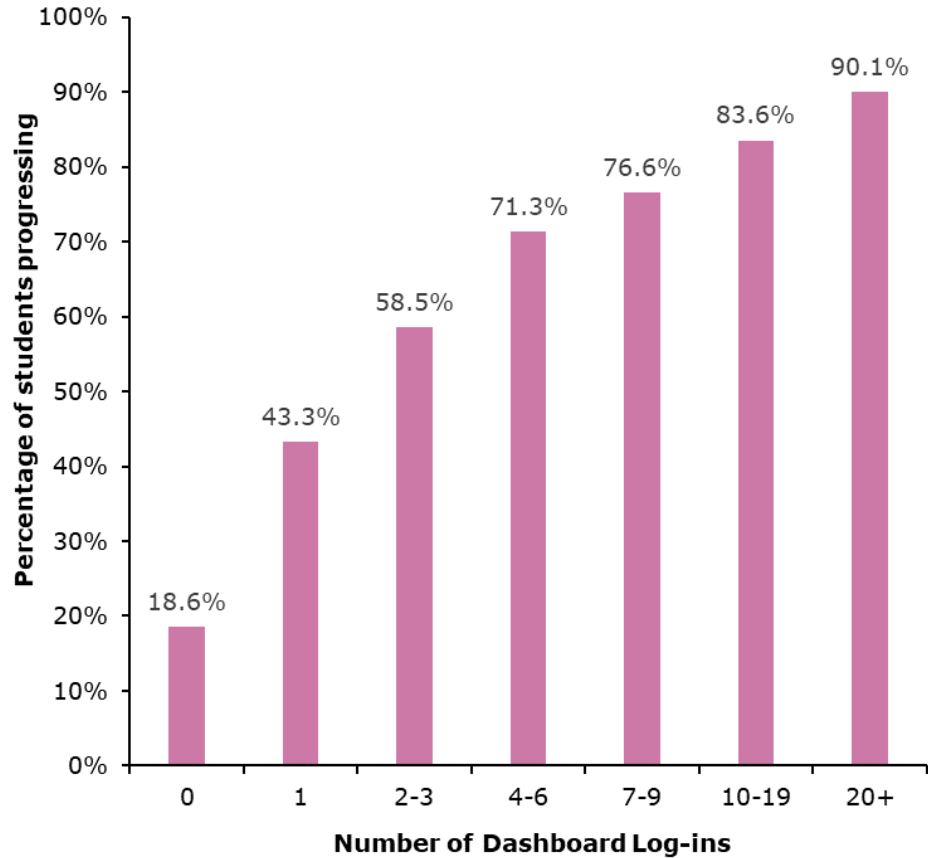
Co-funded by the
Erasmus+ Programme
of the European Union



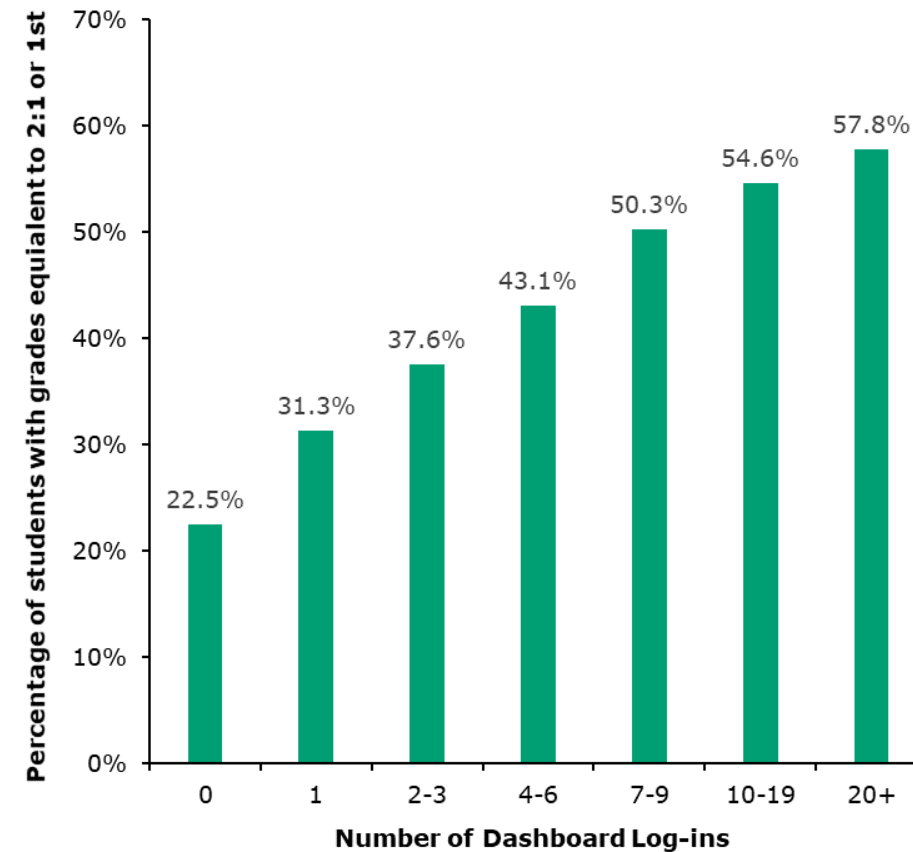
Analysis of librarian support sessions (2015-16)



**Proportion of students progressing to second year
by number of Dashboard log-ins (1st year, FT UGs
in 2016-17)**



**Proportion of progressing students who achieved
grades equivalent to a 2:1 or first by number of
Dashboard log-ins (1st year, FT UGs in 2016-17)**



Strong
relationship
between students
who use the NTU
Learning Analytics
& academic
success



Problem making/ solving (5 mins)

- Can we please build three archetypes
 - Student who is doing well, but just shy of the best marks
 - Good engagement
 - Student who is 'bog standard'
 - Partial engagement
 - Student who is at risk of failing
 - Low engagement



Journey through the first year (10 mins)

- Please think about the the first year
 - Induction, first term, first assessments and feedback, examinations etc.
- Please make a note of events and moments that might have
 - A positive impact on engagement (tutorials, deadlines)
 - A negative impact on engagement (tutorials, deadlines)
- You may wish to look once again at your learning meta-models



The nub of the session (20 mins)

- If we have learning analytics or other data available
- What data could be used to help students over the challenges?
- How would you use it?
 - It may help to imagine being a tutor/ adviser
 - Would thinking about data make you do anything differently?
- We'll be discussing your thoughts in plenary



Conclusion

- Analytics and big data suggest that learners are simultaneously very predictable and also very unknowable
- Learning analytics needs a more rigorous challenge from pedagogical experts
- LA will always need to be designed around the limits of technology, but needs designing by L&T experts and designing to be used in the real world



Thank you for your time

- Does anyone have any questions, thoughts, inspirational ideas?

www.ableproject.eu

www.oflaproject.eu

<https://livinglearninganalytics.blog>

@edfoster