StREAM
by Kortext

A strategic use of student engagement analytics impacting student support, retention and data-informed decision making

Case Study
May 2023

Key Statistics

- 17,800 students on Essex programmes across three campuses (2021)
- 13,800+ UG students (2021
- Public research university, with 19 departments across three faculties
- Established by Royal Charter in 1965
- Rated Gold in the 2017 TEF exercise
- StREAM is used for all of their taught students
- StREAM client from 2017

Executive summary

The introduction of the **StREAM** student engagement analytics platform at the University of Essex was driven by the Vice Chancellor who wanted to understand what opportunities existed at Essex to use data to support student success through learner analytics.

Following a pilot project to 3 departments in 2017, **StREAM** was rolled-out to all staff. Once staff were familiar with how to use **StREAM** and use of the platform was effectively embedded within academic practice, **StREAM** was introduced to students from 2018-19 onwards and the implementation of a new Student Engagement Policy followed in 2020.

A review of the data insights generated over this three-four year period brought a realisation that student engagement was providing a level of insight and wisdom around student support that had not been possible when only attendance-based progress procedures were in place, prior to the adoption of **StREAM**.

The insights and impact arising from the deployment of **StREAM** were such that in 2022, the Academic Registrar at Essex, Richard Stock, was able to **conclude** that moving away from attendance as the sole measure of engagement has allowed the university to identify students with very low engagement and focus support on those most at risk of early withdrawal.

In this case study, we delve deeper into how Essex have been able to identify and support those students most at risk with some impactful results.

What does the data in StREAM tell you?

StREAM ingests data from core university systems that represent students' engagement with their academic studies. This data is processed through the unique **StREAM** engagement algorithm and classifies individual students into a range of engagement categories, from Very Low, through to Very High. This engagement insight helps **StREAM** users - including students - to know when student engagement is lower than expected, to identify where engagement behaviour changes and to highlight where a student might benefit from a supportive outreach conversation to help them re-engage. And, the end-to-end interventions lifecycle within **StREAM** makes signposting a student to support or referring them to another university department for proactive outreach simpler and more streamlined.

> "**StREAM** has helped eliminate duplication of effort, and provided transparency on how and when issues affecting students have been handled. It has also provided transparency for students on how their progress, engagement, attendance and contacts with the department have been recorded and handled. Beyond this, it provides a convenient and reliable way to refer students to services across the university's range of provision, and students are frequently grateful that they don't have to initiate contact with these services themselves."
>
> **Rob Kemp**
> Senior Adviser
> Department of Government, University of Essex

A target-driven approach to staff engagement with StREAM

The deployment of **StREAM** at Essex has been strategically driven and overseen since the outset of the project and is explicitly mentioned in the first page of the university's **Education Strategy 2019-2025**: *The responsible use of data by our skilled community will be fully embedded as a powerful tool for the development, wellbeing and success of all our students.*

Richard Stock, Academic Registrar at the University, explains the importance of data within the Strategy:

'*A key element of our Education Strategy is the responsible use of data as a tool for the development, wellbeing and success of all our students. Essex was one of the first institutions to see the potential of engagement analytics and we are ambitious. Our LEAP (**StREAM**) system has enabled us to manage the risks around student continuation and student withdrawal more effectively to meet our commitments to support every student to fulfil their potential.*'

Active and strategically-aligned engagement with the use of student engagement data by senior university management has helped to secure buy-in across the staff body and were captured from a managerial perspective by setting a target for all staff users of **StREAM** to log-in at least once a term during term time.

While achievement of this target is still a work in progress, oversight of use at department level is helping the university to effectively evaluate where to focus communications, support and training activity, and then working collaboratively across the university to address areas of concern. Auditing staff use also helps ensure target data is accurate as well as enables the university to comply with GDPR requirements over who has access to student data. Interestingly, this managerial use of data to identify areas of concern and implement supportive action is exactly the principle upon which **StREAM** itself is predicated.

> "*Since introducing **StREAM** in 2018, we have seen a step-change in our approach to student engagement, both in our supportive processes and use of data analytics to support positive learning outcomes. **StREAM** has empowered staff to target support in ways that maximise the benefit to students, through timely review and intervention informed by engagement data. The transparency of the system allows students to track their data in real-time and take an active role in the supportive decision-making process, something which has been invaluable in our drive to improve the student experience.*"
>
> **Will Ashbey**
> Student Progress Manager (Engagement)
> University of Essex

StREAM data as a lead indicator

Engagement data within **StREAM** also provides the university with aggregated insights at departmental

level at five identified milestone points across the academic year. The University are concentrating on two lead indicators which are actively monitored by the institutional **Education Data Insights Group**, chaired by the Pro Vice-Chancellor (Education):

- The number of students in 'very low' engagement, as a proportion of the department per review period. If more than 5% of the population, or more than 10 students, have 'very low' engagement, it is flagged as 'red'.

- The average engagement score of the department is measured against the average score for the University over that particular review period. If the departmental score is below the university average (by more than 0.05%), it is flagged as 'red', and departments are notified for further action and support.

The aggregated lead indicator data reviewed by the Education Data Insights Group is supplemented by an additional dashboard, created in Tableau, that provides further insights around timescales, student cohorts and student characteristics, and is updated daily to maintain data validity. In this way, departments can identify students in need of support where this information might otherwise be hidden in the aggregated data.

"The system is used widely for supportive reasons, especially by our personal tutors and students. Features like referrals to Wellbeing Team or Skills for Success greatly improve the response timeframes to individual student cases, making the access and provision to support more efficient and effective, and facilitates communication between a variety of teams at the university, which can be a problem in such a big institution. … In my view the system has evolved from being a simply monitoring system to become a helpful and efficient supportive tool."

Antonio Vivas-Campos
Student Engagement Officer
Department of Economics, University of Essex

Supporting students with very low engagement

*"**StREAM** for me is an important tool to check where my performance and engagement stands in terms of my education. … Hence, a very useful application."*

Anonymised student feedback

The approach taken by the University of Essex to supporting students with very low engagement is articulated in their **Student Engagement Policy**. Paragraph 14 states that: ***Decisions in relation to referral for further action to support engagement are taken in conjunction with broader data and knowledge about a student's academic progress.***

Triangulation of the data with other, non-**StREAM** data points and contextual knowledge held by staff about the student, their engagement with their academic programme and about the university, is important in ensuring that decisions are based on as much relevant information as possible. Joining the dots around student support at the individual lesson is reflective of an increasingly mature approach to the use of student engagement data within a university.

Consideration of contextual information is key to understanding the reasons why a student might be disengaging with their studies. At Essex, this triangulation is structured and defined within policy.

During weeks 1-5 of the autumn term, departments review student engagement on a weekly basis. At the point of the first lead indicator milestone (the end of week 6), departments receive a breakdown of those students with Very Low average engagement over that time period. Previous research at the university found a strong correlation between students in that category and failure to progress at the end of the academic year.

Checkpoint data for the 2021-2022 autumn term identified 417 students within this 'at-risk' category. 372 of those students have continued with their studies or successfully completed. Only 45 have since withdrawn or transferred to another institution. When compared over time, the data shows a continuing reduction in the percentage of students identified at risk in this way who later went on to withdraw from their studies, who failed to progress or transferred to another institution (figure 1).
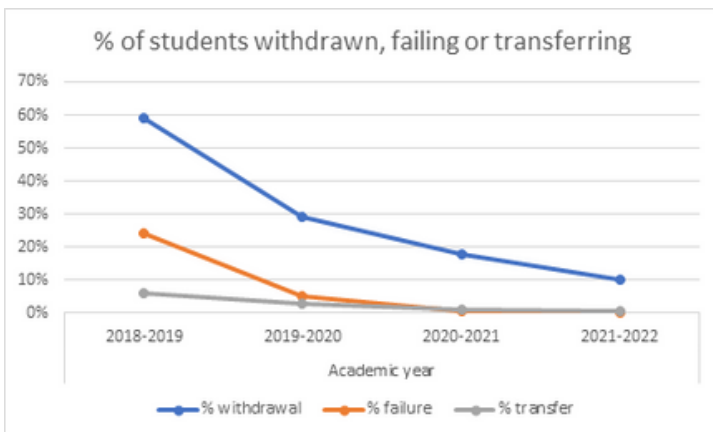

Figure 1: Withdrawal, failure and transfer rates for students identified 'at risk' in week 6 (accurate as of 2 May 2022).

Note: These metrics will continue to be monitored to determine whether they were impacted by the University's 'no detriment' approach to student support and success during the Covid-19 pandemic

More granular reviews of the data have identified departments where the consequent interventions by academic staff have had a positive impact on student engagement. To help other departments improve outcomes for students, particularly those not falling into the 'Very Low' average engagement category by week 6, an additional checkpoint in week 16 has been introduced. The additional week 16 data will provide a complete autumn term data picture and will supplement ongoing departmental reviews and encourage focused, supportive action from the outset of the spring term.

Why the first 6-weeks of study are so critical

Reviewing the historical data on students at risk in week 6 identified that the largest proportion of students in this category are in Stages 0 and 1. Conversely, Stage 0 and Stage 1 students were also more likely to be in the higher engagement categories after 6 weeks of study, suggesting that these new students tend to function at the extremes of engagement at the start of university life. This finding is being used by Essex to reinforce their work to support early engagement particularly as there may be more opportunity to positively impact engagement during these earlier stages of study than later on.

When considered from a progression perspective, students studying at Stages 0 and 1 who are in the average 'Very Low' engagement category after 6 weeks are also at the highest risk of non-progression, with 57% of the students in the group failing to progress in 2020-21. By contrast the non-progression rate for students at Stage 2 or higher who were averaging 'Very Low' engagement by week 6 was just 7%, even though the highest volume of students with an average low engagement score is at stage 2.

Essex have also been able to determine what happens to students in the 'at risk after 6 weeks engagement' category and again, it is students at Stages 0 and 1 who show the least improvement in their engagement, and therefore who are least likely to progress. **97% of students at Stage 2 in this 'at risk' category were projected to progress to the next level of study and 83% of the group improved their average engagement score by at least one engagement rating by the end of the Spring term** (e.g. from Very Low to Low or higher). Only 37% of Stage 1 students showed an improved engagement rating and none of the Stage 0 students improved at all.

These insights have led Essex to amend their Student Engagement Policy to add Stages 0 and 1 students to the list of 'at risk' groups of students highlighted for priority support from the outset of their academic studies.
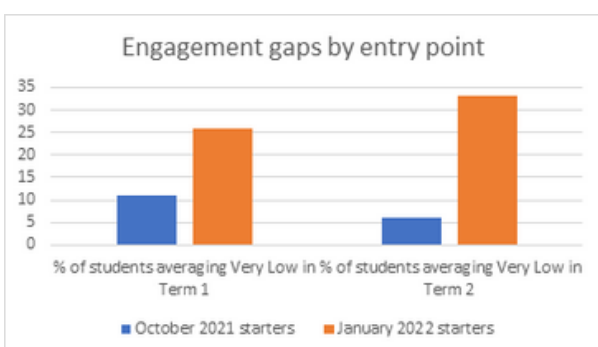
October versus January starters

Figure 2: Engagement gaps by entry point (as of February 2023)

The course start date is another factor shown in the Essex data to impact student engagement with more January starters in the average 'Low' or 'Very Low' engagement categories than the October starters, a gap that increases from Term 1 to Term 2 (figure 2). There are also indications in the data that suggest a high proportion of January starters are not completing their studies. The fact that the majority of January starters are postgraduate students was identified as one possible reason explaining this difference in engagement, but it's an area that Essex are keen to understand in more depth.

Next Steps

As a result of their internal data analysis, the University of Essex Progress Team have identified a number of areas for further action and improvement:

1. The welcome and induction processes will be reviewed for all students but with a particular focus on how January starters are supported in their transition to higher education.
2. Additional support for January starters is further reflected in formal amendments to the Student Engagement Policy to create specific, timebound and measurable expectations for monitoring their engagement activity.
3. Ongoing review of the support available to, and compliance with, the policy requirements around supporting early engagement, particularly for students in stages 0 and 1.
4. Research to better understand how highly engaged students can be encouraged and challenged to aim higher, with a view to impacting good degree outcomes (recognised as Upper Second or First class degrees).

Conclusions

The University of Essex have clearly articulated the strategic value that they place on data-informed decision-making. Their Education Strategy 2019-2025 states that providing a 'consistently excellent transformational education experience for all students across all courses and levels of study', would require the 'responsible and effective use of data to provide a robust, evidence-based indication of [their] educational performance'. The Strategy further explained that they were seeking to develop a 'culture that uses data to motivate continuous improvement and impactful innovation' (paragraph 1.1).

Will Ashbey, Student Progress Manager (Engagement) summarises what the University have accomplished to date with **StREAM** and how they plan to continue this work: '*we have seen a dramatic improvement in our rate of retention since 2018 and are keen to continue exploring how* **StREAM** *can support our strategic vision to the benefit of all students and staff.* '

His perspective is borne out by senior management at Essex:

> "*Through interventions using* **StREAM** *data, we have seen a continued reduction in the number of students withdrawing by the end of the academic year where they previously averaged very low engagement in the first term. We now want to develop StREAM so it becomes a tool for transforming the outcomes of all students as well as identifying and supporting those at risk of early withdrawal.*"
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> **Richard Stock**
> Academic Registrar
> University of Essex

The findings outlined in this case study show the depth of insight that is available to **StREAM** users, enabling the effective focusing of support on those students who need it most. But the impact of **StREAM** is bigger than that. Essex are gaining a richness of managerial insights into student engagement that is enabling them to redesign student support to address critical points in the student learning journey and to review and refine their approach to induction and transition activity with a view to reducing the number of students at risk in those initial weeks of university life.