Collaborative development of pedagogic interventions based on learning analytics

PROJECT OVERVIEW

Newman University Birmingham's 'Collaborative development of pedagogic interventions based on learning analytics' project sought to use student engagement activity data to drive pedagogic innovation. Hence, whilst much other learning analytics work has primarily focused on developing the data, this project was also concerned with how that data might be used to inform pedagogic innovation in support of student success.

Alongside work to ensure clean and usable student engagement data was available to key staff, student-staff partnership projects were conducted across three phases - in a collaborative, collegiate fashion - across three subject areas (Sport and Wellbeing, Youth and Community Work, and English) and within the Social Enterprise 'Evolve.' Each subject area and Evolve utilised Newman's student-staff partnership project framework to consult on, design, deploy and evaluate innovations within their respective undergraduate programmes. Phase one (2016/17) consultative finding's confirmed assertions in *What Works* that it is the 'human side of higher education that comes first' regarding academic success. Phase two projects designed and applied pro-active tutor and group-led peer mentoring systems in 2017/18 that were informed by student activity data. Finally, Phase three concerned itself with parallel evaluation via focus groups and interviews.

The project was informed by our earlier involvement in the Higher Education Academy, Action on Access and Paul Hamlyn Foundation *What Works? Student Retention & Success* phase 2 programme (Thomas *et al*, 2017) which highlighted that, to better support student success, we needed to better understand student engagement activity (p.10). Thus, since 2014, we have been developing activities through participation in Jisc's 'Effective Learning Analytics' project, designed to help institutions use and understand their data (Jisc, 2017) in tandem with using 'student partnership to promote student retention and success' as part of the HEA funded Vice-Chancellors' Strategic Excellence Initiative in 2015/16. [https://www.heacademy.ac.uk/about/news/vice-chancellors%E2%80%99-leadership-learning-and-teaching-recognised] This catalyst project integrates these themes.

Keywords: Student-staff Partnership | Learning Analytics | Peer Mentoring | Student Success

For more information about this project, please contact:

Professor John Peters

Director of Learning, Teaching and Scholarship

J.Peters@staff.newman.ac.uk

+44 (0)121 4761181 Ext: 2626

Sarah Parkes

Tutor for Transition and Retention

sarah.parkes@newman.ac.uk

+44 (0)121 4761181 Ext: 2419

PROJECT DELIVERY AND OUTPUTS

1. Aims and Objectives

The fundamental aim of the project was to enable more students to fulfil their potential. Emergent findings suggest this has been achieved through utilisation of the University's student-staff partnership framework to develop and implement data-informed tutor and peer-led mentoring systems. These provided targeted personal support at subject and modular level in the light of student engagement activity data.

Our original project objectives and updates to project objectives are provided here:

1. 'Implement a contextualised and enhanced case management system to complement the JISC learning analytics solution to provide accessible and usable data on student engagement and progress' - Newman University has purchased SEAtS: a contextualised and enhanced student engagement activity and case management system to complement the JISC learning analytics solution. This provides accessible and usable data on student engagement and progress.

2. 'Collaboratively develop pedagogic interventions through five student partnership projects across a range of discipline areas include Evolve's mentoring development programme' - Through four student-staff partnership projects, we have collaboratively developed pedagogic interventions across a range of discipline areas, including Evolve's mentoring development programme.

3. 'Implement pedagogic interventions, based on learning analytics, across four discipline areas and the Evolve mentoring programme' - Through seven student-staff partnership projects we have implemented pedagogic interventions, based on student engagement data, in the form of tutor and peer-led mentoring systems across three discipline areas over a full academic year and the Evolve mentoring programme.

4. 'Evaluate the interventions through five student partnership projects' - We have evaluated the mentoring interventions through a further four student-staff partnership projects.

5. 'Improve student retention & performance data on the participating programmes' - We have evidence to suggest student retention & performance has improved on the participating programmes.

6. 'Develop and disseminate five student produced case studies of pedagogic interventions to enhance student progression on the basis of learning analytics' - Dissemination of project outcomes has been undertaken internally and to the sector - through faculty presentations, conference papers and article submissions – and will continue beyond the end of the formal project.

2. Key milestones

Our project operated over three distinct phases as follows:

Phase One (December 2016 - July 2017)

Established project Steering group and internal institutional reporting mechanism.

Policy, Student Guide and FAQs compiled and agreed by Learning, Teaching and Assessment Committee as follows:

- Using Student Engagement Data policy
- Supporting student learning through information: A student guide
- Using Student Engagement Policy FAQs

Staff/Student Partnerships: Two student/staff workshops were run for participating subject areas to assist student/staff teams in developing how they would consult with students. They also provided facilitated discussion of the various types of pedagogic interventions taking place in other contexts to support students. The student-staff projects across three subject disciplines and Evolve undertook consultation with the student body to ascertain which interventions might be most effective for students experiencing difficulties in that area. This was supplemented by a further workshop in June 17 disseminating phase one consultation findings and assisting in designing the interventions to be piloted in phase two.

Phase One project reports from each area were submitted to the Academic Practice Unit by 30 June 2017.

Data Preparation: Cross-departmental working between staff within IT, Student Records and Academic Practice Unit was undertaken to identify and collect appropriate Moodle and student records data needed for migration into the Jisc Learning Analytics warehouse. This included validating the data once submitted to the warehouse via Jisc software to assess data integrity.

Continued attendance of key project personnel at Jisc Pathfinder and Analytics network meetings.

Job description agreed for part time IT analytics developer role.

Case Management System: A webinar with Unicon to explore and discuss institutional use of Student Success Platform established that it was not, at that point, as adaptable to the UK context as anticipated. The decision not to use SSP was taken and market research conducted into other CMS in use within the sector. Jisc suggest 'Co-tutor': a sector-developed system as possible alternative.

Phase Two (August 2017 – October 2017)

Staff/Student Partnerships: A student/staff workshop was organized to demonstrate the mechanics of how student engagement data might be used as a basis for triggering pedagogic interventions. Phase Two Student-Staff Partnership project applications were submitted to Academic Practice Unit in September 2017 outlining the proposed interventions to be undertaken across Evolve, English, Youth and Community Work, and Sport and Wellbeing. Projects piloting data-informed peer and tutor-led mentoring systems began in September 2017. Evaluation through interviews and focus groups commenced concurrently with pilots.

Data: Continued collation and validation of student activity data. Data Explorer testing and initial discussions with Jisc regarding library data migration into Learning Records warehouse.

Advertisement for part time IT Analytics developer role conducted.

Continued attendance at Jisc Pathfinder and Analytics network meetings

Case Management System: JISC and Newman discussions with Co-tutor failed to establish a viable

system that could be used. Demonstration of software and initial discussion with SEAts.

Further exploration of CMS within the sector.

Phase Three (December 2017- April 2018)

Staff/Student Partnerships: The interventions in English, Youth and Community Work and Sport and Wellbeing were extended into the second semester through a further three student staff partnership projects. The phase three evaluation projects were undertaken across English, Youth and Community Work, Sport and Wellbeing, and Evolve, via interviews with mentees and mentors.

Two further student/staff project-wide workshops were held in January and February 2018 to celebrate successes and identify challenges; support collation of internal project reports due 28 February 2018 and discuss dissemination opportunities, as well as sustainability plans at the departmental and strategic level.

Data: Staff use and testing of Data Explorer and Study Goal: Jisc's student app with attendance monitoring functionality. Potentiality of using Jisc analytics processor considered but not confirmed.

Appointment of part time IT Analytics developer

Continued attendance at Jisc Pathfinder and Analytics network meetings

Case Management System: Further negotiation with SEAts and subsequent purchase of core engagement data and case management system.

There is an important variations from the initial project plan that have shaped our renewed outcomes and project milestones:

a. Implementation of a student engagement data and case management IT system.

In our initial catalyst application, the use of Unicon's Student Success Platform was proposed. However, upon deeper exploration, discussion with the provider, consultation with Jisc, and with potential institutional users (as well as other sector-wide users), it was agreed by the project steering group that this tool was not suitable in our context. Our investigations into a suitable replacement, supported by Jisc, initially suggested Co-tutor: a sector-developed student engagement data management system and this was included as a proposal in our interim report. However, this did not progress satisfactorily. Throughout much of the project, therefore, our student engagement data consolidation, management and reporting has been handled through the Jisc learning records warehouse and Data Explorer system. While this allowed us to progress the project satisfactorily, including driving the necessary data cleansing and establishing appropriate protocols to provide data to the data warehouse, it did not provide the full functionality intended.

Further investigations resulted in Newman purchasing SEAts: a student engagement data and case management system that provides accessible and usable data on student engagement and progression. This complements the Jisc learning records warehouse and analytics processor and will enable effective monitoring and reporting of student interactions. Engagement in the HEFCE catalyst project process has been fundamental in enabling us to more fully understand our student engagement data and data reporting needs. So, while this element of the project did not develop as smoothly as intended, it has resulted in a great deal of institutional learning and a positive outcome in terms of taking a step change in our handling and use of student engagement data.

3. Significant inputs or outputs

The project has had to adapt repeatedly but has delivered its key inputs and outputs. The most

significant input and subsequent outputs of the project were supporting the development and implementation of a student engagement data and case management system and conduct of student-staff partnerships to develop, implement and evaluate pedagogic interventions.

a. Managing student engagement activity data

The scale of the data task - in terms of establishing appropriate data on student engagement activity, collating it, validating it, and migrating it – became clear as the project got underway. Considerable work was undertaken by members of the core project team to achieve this. This helped establish a single point of truth data warehouse with Jisc. Alongside the establishment of usable data, appropriate data collection and usage policies had to be developed and navigated through to adoption by the University. Considerable development work was undertaken with Jisc, providing user feedback on their data warehouse and Data Explorer system. Due to the delay in establishing a usable system, we used these JISC systems through much of the project but finally adopted SEAtS as our student engagement data and case management IT system. This required an additional injection of funds into the project by the University. Due to the delayed implementation of the case management system as reported in item (2a), SEAts is not yet fully integrated with Newman University systems as originally planned, though this work is ongoing and will fundamentally underpin the sustainability of the project.

b. Student staff partnership work

Four phase one student staff partnership projects were run, across English, Youth and Community Work, Sport and Wellbeing and with Evolve. These gathered student views on what would constitute appropriate pedagogic interventions to support students in their subject areas. Training and development was provided by Academic Practice and the Tutor for Transition and Retention to support these and further iterations of projects. At phase two, the proposed interventions were implemented across these four groups. Due to the delay in identifying an appropriate IT system, some funding was reallocated at interim report stage to support the three academic areas to run a second round of intervention projects through into the second semester of 2017/18. Finally, in phase three, all four areas ran student-staff evaluation projects. We therefore ran fifteen student-staff partnership projects in all.

The learning from the student-staff partnership projects has been considerable and our students have been key participants in the dissemination of the project and the evaluation of the HEFCE catalyst project stream as a whole. Student partners have taken full part in the design, delivery and evaluation of both the individual and overall projects. Their voice has extended beyond Newman through HEFCE catalyst fund workshops and other dissemination events across Europe.

Our experience of working in partnership with students is that it fosters closer and meaningful relationships between student-staff partners that result in reciprocal understanding of each other's circumstances and responsibilities. Moreover, working across the University, the catalyst project has enabled multi-disciplinary relationship-building that in turn has generated inter-disciplinary knowledge between different staff and student groups, prompting personal and professional development of student-partners, including improvements in their university assessments.

c. Key Findings

We found that using student engagement data to inform proactive peer and tutor-led subject-specific mentoring can assist in supporting the student transition into and through level four studies. Qualitative data from this Catalyst project suggests this approach enables staff-student and student-student relationships to develop, reducing a feeling of isolation and thus promoting a sense of belonging in new HE students. Quantitative analysis suggests that this has supported an increase in assessment submission rates and a marked reduction in withdrawals and suspension at level four, amongst participating subject disciplines.

To make data-informed mentoring a success, it should be part of wider mechanisms of support from the University. For example, operating as part of an integrated mentoring system available to

everyone, not just those identified from engagement data. Furthermore, a 'one size fits all' approach is not appropriate in establishing such pedagogic innovation across all disciplines and student groups. Flexibility and informality in the organisation of such activity needs to be implicit in the design from the outset to allow for adaption to cohort, discipline and need.

Staff have reported that delivering data-informed mentoring has been beneficial in a range of ways, most broadly and of importance is that it has enabled them as a learning community to support student engagement and experience.

On an individual level staff have noted many successes, such as pro-active help for mentees with time management and organisation that has helped with prioritising work and home life. From qualitative data collected, student mentees have said that this has helped in feeling more able to cope with the transition into HE; build their confidence and understand how the university 'worked'.

Even though not the focus of this Catalyst project, the subject-specific knowledge generated between staff and students, and between mentor and mentee, has led to increasing engagement via discussion of modules and specific assessments. This has produced further discussion between mentor/mentee about modules/courses/lecturers, which can be very positive – i.e., the mentor sharing their (relative) wealth of experience with the mentees, as well as with staff. This in turn highlights the importance of the subject-specific nature of the mentoring: if students were not on the same/similar courses, it would be difficult to have any sort of meeting that moved beyond superficial levels and signposting.

We would particularly commend the adoption of ways of working which promote partnership working between students, professional and support staff, and academics from a range of disciplines. This entails funding, trusting and listening to student partners and working in ways which break down traditional power relationships. Fundamental to the successful use of engagement data to drive pedagogic interventions is the human relationship at the sharp end of addressing student need. While the use of big data can help target support where it may be needed most, it is the compassionate human contact that matters most to student progression and success.

CHALLENGES

The project as a whole did experience some significant challenges. At the strategic level, challenges included delays in recruiting a specific IT Analytics Developer, establishing an institution-wide student engagement data and case management IT system, and difficulty in launching student-staff partnership projects in some discipline areas.

The delays in recruitment of the IT analytics developer did mean that resources within our IT department were stretched for much of the project, and consequently affected how much work could be completed on a weekly basis, and the level of input given externally to Jisc in their development of Data Explorer. This was managed by regular meetings between key staff in IT and the internal project lead, to ensure that at least the foundational work on data integrity and flow into the data warehouse was conducted. Externally, attendance at regular Jisc analytics network meetings helped maintain the projects momentum. Since the appointment of the Analytics Developer in December 2017, detailed internal systems development work is being realised and progressing well.

As reported in item (2a), the significant delays in establishing an institution-wide case management system was frustrating as this was intended to support the work conducted by staff within the student-staff partnerships, offering a way to ensure that information about students requiring support could be easily shared and monitored across departments. Consequently, staff have maintained their own methods of recording student contact and related actions, which has been time consuming and, in some instances, a duplication of work.

At the subject discipline project level, staff have been disappointed with the version of Jisc's Data Explorer that includes an attendance monitoring software, as well as the accompanying Study Goal app. Whilst appreciating that our use is part of Jisc's research and development phase, these have not worked very well across all student and staff users. Yet, whilst time consuming, staff have said they can see the benefit of Data Explorer as a way to view student data holistically, particularly when suggested updates have been implemented in subsequent versions.

There have been challenges with running the data-informed mentoring. Establishing how to contact and arrange meetings between mentor and mentees has puzzled staff and student partners alike, across all subject areas and including Evolve. In retrospect, this may be anticipated due to the nature of the task i.e. level four students who are not engaging with the University are unlikely then to respond to emails asking them to get in touch. To overcome this challenge, mentors were persistent in contacting students via social media or 'Whatsapp', with staff using personal emails or a telephone call to initiate contact with the mentor.

CONCLUSIONS

Newman University has found that using student engagement data to inform proactive peer and tutor-led subject-specific mentoring can assist in supporting the student transition into and through level four studies. Qualitative data from this Catalyst project suggests this approach enables staff-student and student-student relationships to develop, reducing a feeling of isolation and thus promoting a sense of belonging in new HE students. Quantitative analysis suggests that this has supported an increase in assessment submission rates and a marked reduction in withdrawals and suspension at level four, amongst participating subject disciplines.

To make data-informed mentoring a success, it should be part of wider mechanisms of support from the University. For example, operating as part of an integrated mentoring system available to everyone, not just those identified from engagement data. Furthermore, a 'one size fits all' approach is not appropriate in establishing such pedagogic innovation across all disciplines and student groups. Flexibility and informality in the organisation of such activity needs to be implicit in the design from the outset to allow for adaption to cohort, discipline and need. Indeed, using digital communication methods outside of institutional means (such as WhatsApp) in small peer groups is beneficial and effective to facilitate social network development, enabling an informal mechanism for students to seek advice and guidance.

Our experience of working in partnership with students from the outset to design, deliver and deploy pedagogic interventions fosters closer and meaningful relationships between student-partners and staff that results in reciprocal understanding of each other's circumstances and responsibilities. Moreover, working across the University, the catalyst project has enabled multi-disciplinary relationship-building that in turn has generated inter-disciplinary knowledge between different staff and student groups, prompting personal and professional development of student-partners, including improvements in their university assessments. We would particularly commend the adoption of ways of working which promote partnership working between students, professional and support staff, and academics from a range of disciplines. This entails funding, trusting and listening to student partners and working in ways which break down traditional power relationships.

As we hope this project has demonstrated, relatively small scale externally funded innovation projects can have significant institution-wide impact. As a negative, the project has also confirmed that projects involving the innovative deployment of IT are always more complex, time consuming and fraught with delays than anticipated. It would therefore be worth considering the adoption of similar small-scale innovation project funding in future, but over a slightly longer time period.

It has been helpful to meet with colleagues working on similar projects at other institutions at HEFCE catalyst project workshops and this sharing of practice should be built in to any future national project work.

We would particularly commend the adoption of ways of working which promote partnership working between students, professional and support staff, and academics from a range of disciplines. It would seem highly appropriate for the new Office for Students to promote such approaches as a means of strengthening the student voice in Higher Education.