

## Case Study D: Identifying Students in Need of Targeted Support

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Module discipline: Chemistry

Approximate module size: 692 students

Level of module: First year Undergraduate

### Reasons for using analytics in the module

This module (General Chemistry) has a large and very diverse cohort; with many students who have do not have a Leaving Certificate qualification in chemistry. It is also an Autumn semester module, so these students are only just being introduced to third-level modes of teaching and learning. As such, many of the students need support with the module. In addition to support provided by the module leaders and Department, they also have supports available to them in the Science Learning Centre in the University of Limerick. There they can visit postgraduate tutors with a background in chemistry for one-to-one or small group sessions, on a drop-in basis.

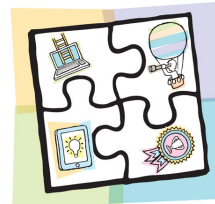
It was not clear that the students who might most need the support, eg, those at risk of failing to progress, were made sufficiently aware of/were using these supports. Hence in Autumn semester 2016, the module leader, in conjunction with the Science Learning Centre (SLC), trialed a new collaborative approach. The module leader identified students who had poor module engagement (VLE visits, lab attendance) and quiz scores by week 4 of the semester. These students were then sent an email by the Coordinator of the SLC informing them of the SLC services. The Coordinator of the SLC then looked at impact of participation by all students for this module in SLC services. In the following Spring semester, there has been ongoing collaboration for two chemistry modules, one taught by the same lecturer. In this case students who had scored a C3 or less in the Autumn semester module were emailed and given the opportunity to attend specialised tutorials revising some of the material from the Autumn module that they would need for their spring modules. These revision tutorials ran for 4 weeks.

### Data sources/modelling approach

Data comes from SULIS – the University of Limerick virtual learning environment (VLE) - module grade data from laboratory practical scores, quizzes, mid-terms and end of semester examinations. Handwritten sign-in sheets are kept of student attendance in the SLC . All data is put into EXCEL spreadsheets, and pivot tables are used to generate charts.

### Impact of using data

Analysis of impact of these interventions for student progression, along with identification of possible improvements to the interventions, is ongoing. Initial analysis indicates that the students identified as at risk early in the Autumn semester module were not by a great majority prompted to use SLC services by the email, but a good portion of these were also among lower performers in the module. Others showed better performance than predicted in the module. They may have been prompted to attend to their learning independently. But it is likely that students may need multiple reminders, and some



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specialised tutorials, as was found to be effective in the case of another module, to prompt them to engage. It is also likely that this early identification is not sufficient to identify students at risk, as student engagement and performance may change over the course the semester, as some become more accustomed to third-level. Students who attended the SLC Drop-in service for support with this module were concentrated in the B and C grade categories, more so than in the Fail or A grade categories.

Based on initial analysis of outcomes from the Autumn semester module, the specialised revision tutorials were held for students identified as at risk in the Spring semester, as previously described. The impact of these special revision tutorials in semester two is not yet available.

### Gathering further data

Extra multiple choice assessments have been made (two extra on line tests on Sulis). The aim of this was to make sure students kept up to date with their work and to gauge understanding of the material. It was also used to monitor at risk students. Students with poor performance (or absent) were contacted and offered help if required. (see first paragraph above)

Clickers have been introduced and are used during lectures. Most students have clickers (over 90%) and clickers are registered on Sulis by the students. Therefore there is a large set of data on attendance and performance during lectures. This was successful in engaging students although it was not used for attendance. Attendance numbers were up however.

### Advice for colleagues interested in using a data-enhanced approach

From a learning support perspective it is important to share all insights and foster collaborative endeavours with lecturers for modules for which we provide support, even where apparently unsuccessful in driving students to utilise specific supports. The SLC had more extensive plans initially for a pilot to support at risk students. We ended up trying various aspects of it with three modules (including General Chemistry) and it became clear that different approaches will work best in different situations, but most importantly to start small! It is an ongoing process to identify impact and improve services, and to tailor to specific cohorts of students' needs. Our advice is to trial a few small interventions in collaboration with module lecturer, which do not require huge resources or time, to find the most successful approach.