



8.3 Introducing more problem-solving, group work and formative feedback to improve attainment: BSc (Hons) Forensic Science

The cohort

The BSc (Hons) Forensic Science degree recruits approximately 110 students per year. Of these students on average 52% are white and 48% are BME. A large proportion of these students enter the course via BTEC qualifications.

Factors which triggered the interventions

- 1. Attainment data** In 2012-13 the attainment gap between White and BME students achieving a good honours degree was 55%.
- 2. Student prior qualifications and circumstances** Many BME students enter the course with BTEC qualifications and these students lack confidence about studying at university and have far less experience of examinations. This put them at a disadvantage in the existing summative, examination-dominated assessment strategy for the course.

Interventions

- 1. Problem-based learning approach** We changed the pedagogic approach of the course from didactic lecture content delivery to laboratory-based and applied problem-solving from level 4. This reduced assumptions about students' prior knowledge but helped students to learn and practice essential laboratory skills such as using the equipment, measuring and reporting results in the first semester.
- 2. Scaffolding of laboratory experiences** We have developed the way we explain and scaffold all tasks. Each laboratory is preceded by a pre-lab session where the theory, protocol for the experiment, the equipment to be used and the outcomes are all discussed so all students know exactly what they are doing and why. A laboratory manual and workbook for all the laboratories during the module includes clear instructions, diagrams, prompts and links to relevant further reading. Students receive formative feedback on laboratory reports and, at the end of the module, submit the 4 best full reports from the 13 laboratories.
- 3. Peer learning** The problem-solving approach is enhanced by encouraging students to work together and discuss the subject as scientists. For example, in the 'Explosion, Fire and Firearms' module, students are given 30 problem-based questions which they work through and discuss with their peers. Each student individually submits their answers to



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the problems in May benefiting from opportunities to learn from each other through discussion and peer feedback

Outcomes

As an outcome of the interventions the progression rate from level 4 has improved from 67% in 2013 to 86% in 2017.

The attainment gap between BME and White students has also significantly decreased to 25% in 2015-16 to 0% in 2016-17.

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