

Reference: 20161205101744

Topic stream: B. Good practice

Submission type: Presentation

Submission title:

Increase student ownership to build innovation and enterprise in the applied sciences classroom

Abstract:

In response to the University's 2020 Strategy: Building Success and particularly the objective, "to provide a learning environment that develops graduates who have enterprising and innovative mind-sets and who are well prepared to thrive in complex uncertain environments", we re-visited our unit on a postgraduate module. With a critical eye, we embedded activities to encourage students to take ownership of their learning and development, worked to foster an increase in student responsibility and improved our communications to increase awareness of the opportunities provided. The mixed-delivery unit was based on the emerging technology of cell-therapy, using human blood. Previously, we provided step-by-step protocols for the lab-practical sessions to allow the students to prepare before entering the labs. Our experiences indicated that students did not engage with the practicals to the standard expected. On reflection, we concluded that provision of the protocols was enabling passive engagement with the experience. To encourage deeper engagement and learning we created a "frustrating by design" approach (Detweiler-Bedell & Detweiler-Bedell, 2011, p. 145) and embedded a pre-practical activity that would help to prepare them for work in a complex world by encouraging them to step outside of their comfort zone (Healey 2011, p. 203). We assigned students to groups, provided an academic journal-based methodology of the techniques, added foot notes, catalogue numbers for reagents, a list of plastic consumables available and a diagram of the lab layout. Each group was required to submit their protocol prior to the practical start to receive the protocols to be used. This provided the students with a timely opportunity for self-assessment. An opportunity to discuss the protocols was available in class. The formative experience increased student awareness of what they didn't understand, which allowed for more informed discussions during the practical session. Additionally, students had an increased understanding of the planning, knowledge and skills needed for protocol generation and implied expectations in the workplace. Prior to class, the student groups were assigned conflicting articles on the advantages and disadvantages of cell-therapies in the treatment of different diseases. To add a real-world context to the lab sessions, the groups were tasked with identifying the strengths and limitations of the therapies and presenting their findings, considering their impact in terms of society, ethics and economics.

Student feedback indicated that 77% of the students agreed or strongly agreed that the pre laboratory 'methodologies' exercise helped them to engage with the practical day in a beneficial way with 88% agreeing or strongly agreeing that the exercise increased their awareness and understanding of the information needed to generate lab protocols. Written feedback provided by the postgraduate students described the experience as 'real life', 'crucial' and 'an eye opener'. This approach to enhance a learning environment could be embedded across programmes in the university and we plan to use this session to share our work and engage with participants to seek input to develop our approach further.

Detweiler-Bedell, J., & Detweiler-Bedell, B. (2011). A classroom of colleagues. In I. Hay (Ed.), *Inspiring academics: Learning with the world's great university teachers* (pp.142–149). McGraw-Hill: Open University Press.

Healey, M. (2011). Excellence and scholarship in teaching: Some reflections. In I. Hay (Ed.), *Inspiring academics: Learning with the world's great university teachers* (pp. 198–207). McGraw-Hill: Open University Press.