

Enhancing the Student Experience of the Application of Scientific Techniques in Practice

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Introduction

One of the Queen Margaret University (QMU) graduate attributes states that our graduates have **academic, professional and personal skills for career management and personal development** and **employability** is a key enhancement theme. The student experience must therefore take this into consideration.

BSc (hons) Applied Pharmacology (AP) and BSc (hons) Human Biology (HB) are the only two pure science programmes offered by QMU. Students on these programmes have traditionally sought their own opportunities to gain practical experience, as there are currently no formal science placements available to these students through their programmes. A need to assist the students in gaining experience in the application of science in the workplace and enhance their future career options was identified.

Aims

The aim of this project was to help undergraduate science students to become more “work ready” by establishing short-term placement opportunities for students to engage in the application of scientific techniques in practice.

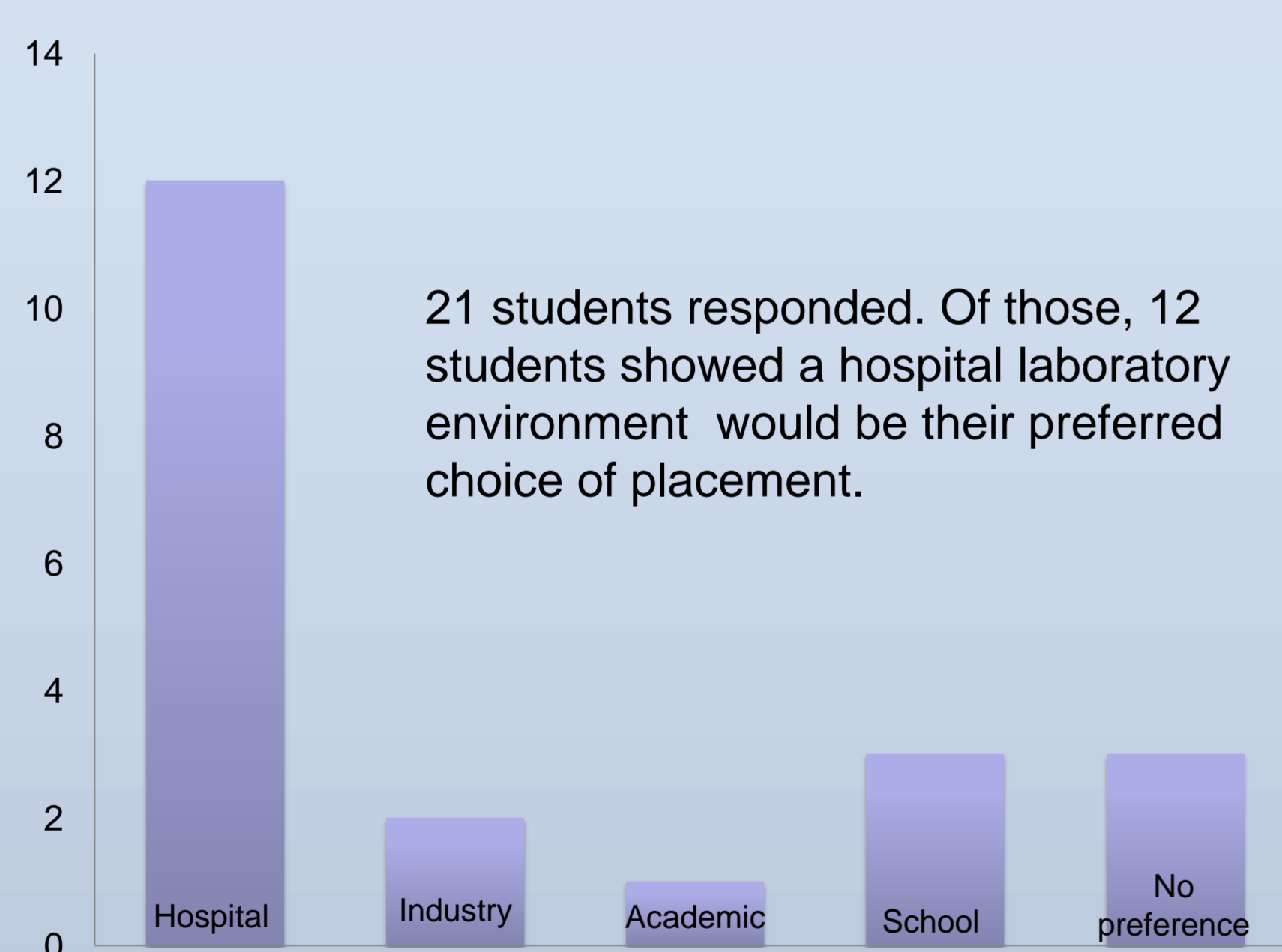
Objectives:

- Develop and evaluate a structured approach for science placements in industry, other universities and the NHS
- Incorporate science placements into the curriculum to enhance understanding of theoretical scientific and technical concepts in order to assist achievement of learning objectives and enhance employability

Methods

Introduction to Placements

An event to introduce the concept of formal science placements was held. Students from levels 3 and 4 of the AP and HB programmes were asked to give information about where they would like to go if offered a placement and what the perceived benefits might be.



21 students responded. Of those, 12 students showed a hospital laboratory environment would be their preferred choice of placement.

The most common perceived benefit was gaining confidence in laboratory techniques and procedures for future careers, ultimately increasing future prospects.

Careers and Placement Event

A second event was organised to discuss how to make the most of the placement experience and how to enhance career options. This involved guidance on writing a reflective report of an experience to show skills, attributes and abilities that could accompany their CV or applications.

Results

Student feedback following the careers and placement event.

- Essential information about writing a cover letter relevant to employers in the science sector
- Help in preparation for interviews
- Now able to make a CV stand out
- Deciding what relevant information to include in a CV when applying for science jobs or post-graduate opportunities
- Understanding reflection (good or bad) to identify skills relevant to scientific careers
- More prepared to participate in placements and make the most of the opportunity

Preparation for Placements

Before their placement, student were given a checklist to ensure all students were *practically* prepared for their placement - this included guidelines about professionalism, logistics, and recording their experience

The Placements

Placements were sought from potential employers in Edinburgh and the Lothians, as well as further afield in Scotland. Despite extensive background investigation and significant efforts to establish placements in a wide range of environments, only 7 out of the 13 final year students were able to embark on a placement – all within academic research laboratories.

Many factors inhibited the establishment of placements:

- Limited employer resources for supervision
- Health and Safety/Disclosure concerns
- Relocation of NHS laboratories in Edinburgh and the Lothians
- Other placement commitments
- The Scottish winter !

Themes emerging from the reflective accounts following placement (n=7)

- Students felt their roles on placement were effectively explained
- Placements allowed student to apply and expand on their skills already acquired through their course
- Gained experience working in teams and improved team work skills
- Improved communication skills
- Increased students interests in laboratory based work
- Improved logistic and data handling
- Increased understanding of equipment and techniques used (vicorder, gas chromatography, myograph, microscope, analytical calculations, animal dissection)
- Greater understanding of how research is carried out (funded, ethically approved)
- Help to make a more educated career choice

Conclusions

- The students enjoyed their placement experience and felt that it met all of their perceived benefits
- Seeing the application of scientific techniques in practice allowed the students to appreciate their own skills and knowledge
- The wide range of benefits is evidence of the personalization of the placements to suit particular student needs
- Placements clearly have a role in helping to consolidate learning and enhance employability
- The logistical issues encountered may inhibit further development of a structured placement system