# The Workplace Simulation Project

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## Introduction

Integrating workplace skills with academic study is believed to benefit students in their preparation for employment.[1,2,3] Undergraduate students who are not employed or on sandwich programmes often seek voluntary placements in diagnostic laboratories in order to gain work experience to enhance their employment prospects. A combination of resource and legislation requirements limits the number of employers able to support such voluntary placements in the current climate. The Workplace Simulation Project is a summer course for second and final year undergraduates, which assists in the development of employment skills of those participating. The course is designed to include core elements of employment within the science and healthcare sectors, with generic aspects being common to all forms of employment.

The laboratory where the course is based possesses small workload clinical chemistry and haematology analysers. Those attending follow the requirements of the workplace, such as attendance, punctuality and professional behaviour. They will gain skills in the maintenance and quality checks of equipment, running of equipment, laboratory health and safety, internal quality control and external quality assessment, results reporting and dealing with unexpected or problematic situations. In addition there will be an introduction to accreditation as a small service run by the University is currently being assessed by UKAS for ISO 17025 accreditation and a document management system operates. Learning will be facilitated through instruction, performance, competency assessment and regular verbal feedback. An afternoon visit to a large teaching hospital Biochemistry and Haematology Departments was included. On successful completion of the course students receive a final report and a certificate. The aim of this project was to evaluate student development and experience on the first running of these placements.

## Methods

Seven students undertook summer placements, ranging from three weeks to six weeks in duration. The placements were prearranged and students were provided with a schedule (Table 1) and instructions for the placement. Their work revolved around the maintenance, set up and use of a small multichannel clinical chemistry analyser, the Werfen Instrumentation Laboratory ILab Aries.

Of the seven students, three attended for six weeks and four attended for their three week scheduled blocks. The three continuing students were assisted with the new placement students and undertook additional tasks such as stock taking, reviewing internal quality control performance and an overview of the haematology analyser. The students were given a small amount of weekly funding towards their travel costs.

On completion of the placement, students were asked to produce a brief abstract on their mini project and for initial scoping purposes, complete a feedback questionnaire.

| Date | Time | Activities |
|---|---|---|
| **Mon 20/07/15** | 10:00 – 14.30 | Introduction to employment in a diagnostic laboratory<br>Patient confidentiality<br>Health and Safety<br>Principles of good laboratory practice<br>Use of basic equipment |
| **Tue 21/07/15** | 10:00 – 15:00 | Introduction to the ILab Aries<br>Daily maintenance and start up<br>Basic operation<br>End of day procedures |
| **Wed 22/07/15** | 10:00 – 15:00 | Standard Operating Procedures<br>Method parameters |
| **Thurs 23/07/15** | 10:00 – 13:30 | Types of reaction measurements<br>Calibration and quality control |
| **Fri 24/07/15** | 10:00 – 15:00 | Introduction to Westgard rules for internal quality control<br>Request forms<br>Setting up worklists and running 'patient' samples<br>Blood collection tubes and preservatives |
| | | |
| **Mon 27/07/15** | 10:00 – 15:00 | Introduction to method evaluation<br>Saving and printing data<br>Within run bias and precision calculations |
| **Tue 28/07/15** | 10:00 – 15:00 | Renal function tests<br>External Quality Assessment Scheme and Reports |
| **Wed 29/07/15** | 10:00 – 15:00 | Liver function tests<br>Changing calibrator and quality control values<br>Adding a new calibrator or new quality control value |
| **Thurs 30/07/15** | 10:00 – 15:00 | Metabolic markers<br>Setting up a new method<br>Calculated parameters |
| **Fri 31/07/15** | 10:00 – 15:00 | Skeletal function<br>Checking the validity of patient results, when to repeat a test<br>Reference change values |
| | | |
| **Mon 03/08/15** | 10:00 – 15:00 | Monthly maintenance<br>Mini project |
| **Tue 04/08/15** | 10:00 – 15:00 | Laboratory accreditation principles<br>Mini project |
| **Wed 05/08/15** | 10:00 – 15:00 | Mini project<br>Between run bias and precision calculations |
| **Thurs 06/08/15** | 10:00 – 15:00 | Mini project<br>Competency assessment |
| **Fri 07/08/15** | 10:00 – 15:00 | Completion of outstanding work<br>Summary and evaluation<br>Certificates |

Table 1 Planned schedule for placement students

## Results

Six out of seven questionnaires were returned. The responses to the questions are shown in Figure 1. The placement attendance rate was 93%, students notified the laboratory prior to absence as instructed.

All students passed their competency assessment on the set up and use of the ILab Aries analyser.

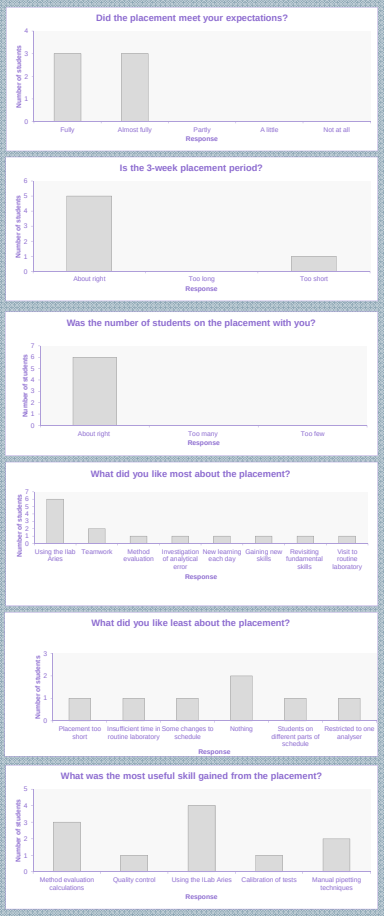


Figure 1 Student responses to placement experience questions

## Discussion

These short placements allowed students to gain new skills in areas related to the work of diagnostic laboratories. Limitations of the work were that it was not always possible to adhere to the pre-planned schedule especially when a student was unable to attend and some unforeseen circumstances resulted in the first placement period being reduced. For this reason some students from the first placement were allowed to continue for another three weeks. A useful part of the evaluation process was the feedback regarding improvements for next year. These suggestions included; the incorporation of additional competency assessments, increasing the range of tasks, gaining more experience in additional analysers, increasing the length of the visit to a diagnostic laboratory and having stricter control on timekeeping. With modifications resulting from this year's students we plan to repeat the placement schedules next year and undertake a more rigorous evaluation to also include employer views.

## References

1. Welsh, A., Inskip, C. (2015). "Intellectual and Practical Knowing": the introduction of the Professional Knowledge and Skills Base at University College London. In *iConference 2015 Proceedings*.

2. Mills, B. W., Carter, O., Rudd, C., Ross, N., & Claxton, L. (2014). Clinical placement before or after simulated learning environments? A naturalistic study of clinical skills acquisition amongst early-stage paramedicine students. *eCULTURE*, *7*(1). Retrieved from http://ro.ecu.edu.au/eculture/vol7/iss1/3

3. Embo, M., Driessen, E., Valcke, M., van der Vleuten, C.P.M., (2015). Integrating learning assessment and supervision in a competency framework for clinical workplace education. *Nurse Education Today* , Volume 35 , Issue 2 , 341 – 346

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